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THE VETERINARY JOURNAL

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JULY, 1885.

AMPUTATION OF THE PENIS.

BY R. H. HARRISON, D.V.S.,

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THE operation of the amputation of the penis has been performed in various ways for many years; it is considered as a major operation in veterinary surgery, and one that the ordinary practitioner often dreads, for fear of an uncontrollable hæmorrhage, giving rise to a fatal result, also other complications, such as impaction of the sheath, stricture of the urethra, and blood poisoning. Therefore many curable cases are either aggravated by the application of caustic powders and solutions, which, if a malignant growth be present, is stimulated to increased activity of growth, or if the organ is paralysed, it is secured *in situ* by stitching up the opening of the sheath, and exposing the animal for sale, to delude some unwary purchaser. The indications for the operation are any disease of the penis or its covering, the prepuce, that has resisted ordinary means of treatment, also those which from the nature of the disease seem hopeless: carcinomatous and epitheliomatous growths, which are malignant, and have a tendency to recur; *warts*, when many in number, and after removal by the usual procedure of cauterisation or ligation, recur again and again, sometimes becoming the source of alarming hæmorrhages; again,

when the organ is covered with ulcers, or becomes permanently relaxed by paralysis, which sometimes follows as a sequence of Spinal Meningitis, or when it becomes exhausted by over-stimulation, as in the case of an entire animal that had covered so many mares the penis could only be withdrawn one half, allowing the protruding extremity to become wounded, ulcerated, and indurated from external injury.

A rapid review of the anatomy of the organ should offer several valuable suggestions for surgical treatment.

First.—It is composed of erectile tissue, which, in the soliped, is the corpus cavernosum, and forms the superior and lateral portions of the penis. The question naturally suggests itself, How much erection of the organ is likely to take place during or following the operation? In stallions this may prove troublesome, giving rise to occasional slight hæmorrhages after amputation, even when the vessels have been ligated, but it can readily be checked by douches of cold water to the prepuce, its walls or interior. During the manipulation, fear and restraint will, as a rule, overcome any tendency to erection; in geldings slight priapism is often noticed, but seldom necessitates any interference.

Second.—The arterial supply from the external and internal pudic arteries, giving off the dorsals of the penis, and the cavernous artery. These vessels are flexuous, so that when the organ is allowed to resume its proper place, the velocity of the blood current is physiologically lessened; this fact of itself would be a factor in controlling bleeding, if erections do not occur. After amputation, the divided arteries and veins present open mouths, and can be easily secured; they lie principally at the superior border.

Third.—The retractile cords must be considered, as they are powerful, and will overcome the resistance of a strong ligature; especially will this be seen after the organ is divided—the penis will slip through the ligature and retract into the prepuce. This will necessitate its withdrawal, which is *difficult*, also give rise to much hæmorrhage, as well as bruising of the stump by the manipulations. This can be obviated by encircling the organ, above where the amputation is to be made, with a piece of

strong tape, tied as a bleeding knot, the ends being given to an assistant to hold.

Fourth.—The posterior pocket of the sheath, which is occupied by the penis when wholly withdrawn, is to be thought of, as it forms a receptacle for the accumulation of urine, pus, and the débris of growths, especially when they are so large as to prevent the protrusion of the organ; also during the first week or two after amputation, the penis is seldom elongated in geldings, so that in the healing of the stump much pus and urine collects, which, if allowed to remain, complicates the healing process.

Modus Operandi.—The patient is to be prepared for operation by dieting and local cleanliness; half an hour before casting is to receive a full dose of chloral hydrate as an anæsthetic; to be cast on the right side, and turned on his back, as if for castration, or a position which is more favourable, viz., draw the upper hind leg forward, by a side line passed over the neck and secured, then raise the extremities to an angle of about 45° , by passing the hobble rope through a ring overhead; examine the bladder per rectum, and if full evacuate it by the catheter; withdraw the organ entirely, as this effaces the prepuce, and thoroughly cleanse and disinfect it; hold it in position by a bleeding knot of tapes tightly drawn, applied two or three inches above the point of amputation, and pass to an assistant to hold. A twofold result is accomplished—first, the organ is ligated; secondly, it can be held in place until the operation is concluded. Introduce a catheter or sound, well oiled, into the urethra, beyond where the incision is to be made, and with a sharp bistoury make an incision downwards and backwards, dividing the organ in a circular manner to the sound or catheter; dissect the urethra away, so that it will project beyond the stump half an inch; ligate all the arteries and the larger veins with fine silk tied with a surgeon's knot, and the ends cut short; withdraw the catheter, and introduce a director in its place, and, with a curved blunt or probe-pointed bistoury, or scissors, incise the inferior wall of the urethra a distance of an inch or one and one-half inches, according to the size of the organ; suture the mucous membrane of the incised canal to the skin of the penis, so as to make a large triangular

artificial notch and meatus. Sutures to be applied with a fine curved needle, and carefully made. An advantage is gained by leaving the urethra a little longer than the stump—the sutures are not subjected to strain, the urethra is not stretched, and the flaps entirely cover the amputated end, thus checking hæmorrhage. The bleeding knot may now be relaxed *very* gradually, the penis allowed to retract into the prepuce, and the animal allowed to get up. The hæmorrhage following is slight, and can be readily stopped by dashing cold water against the sheath.

Consecutive Treatment.—Place your patient in the best possible hygienic conditions ; for a few days let him occupy a single stall, and keep tied up. Restrict his diet, and combat colicky pains by small doses of chloral or opium, counteracting fever by febrifuges, shock by small doses of alcoholic stimulants. If the bladder is not emptied after six hours, apply steady pressure to the viscus by the hand in the rectum. It will often be observed that almost immediately after an animal is released from the hobbles he will at once micturate, the act being accompanied by tenesmus. Forty-eight hours after the operation, examine the parts, by introducing the oiled hand into the sheath. The swollen stump will be felt in the posterior pocket as a rounded protuberance. The sutures and notch can also be felt. This manipulation should be made very gently, so as not to excite bleeding ; if suppuration has commenced, cleanse the parts with carbolised water. The stitches need not be disturbed until they are felt cutting through ; then remove them by introducing a blunt-pointed pair of scissors. The ligatures on the arteries will come away in the discharge. The penis must not be withdrawn at any time, unless absolutely imperative, as the union between the mucous membrane of the urethra and stump will be interfered with or destroyed. As a rule, the swelling so often observed in surgery of this region is very slight, and rapidly diminishes by hot fomentations to the parts and exercise. The animal is laid up from two to three weeks. I have operated in this manner in a number of cases, to which I desire to briefly call your attention, as they seem to illustrate the benefits of this method of procedure.

Case A.—A bay stallion, twelve years old, 15.3 hands high, was said to have covered fifty mares during the season, some of them several times. It was noticed that after copulation erection quickly subsided, but the organ remained hanging in a pendulous condition for several hours, until finally it could not be withdrawn into the sheath but one-half. When seen, the penis projects from the prepuce six inches, is swollen, covered by ulcerations, and is indurated; the urethra is constricted to a distance of four inches. An operation was decided upon, and performed above the induration in the manner described, except that the division was made by a single incision. The hæmorrhage following was slight, erections were frequent, and tore away the sutures in several places; both were readily controlled by douches of cold water, which was especially useful in limiting the *duration* of erection.

The animal was put to work in a week's time; the parts were cicatrised in three weeks, leaving an artificial notch well-established. Several months afterwards, this animal was castrated on account of extreme viciousness.

Case B.—A chestnut gelding, seven years old, 15.2 hands high, presents an epithelioma, the size of an egg, involving principally the fossa navicularis, the inferior part of the gland pressing upon the urethra to constrict it, so that when the animal micturated the urine was thrown upwards and forwards, soiling the anterior extremities as high as the elbows. Amputation was performed an inch above the glans penis. This case did well; a year after the operation shows the stump covered by the mucous membrane of the urethra, and cicatricial tissue joining to the skin; the urethra represents a large V-shaped notch.

Case C.—Bay gelding, nine years old, 15.2 hands high, in poor condition, shows a large tumour-carcinoma, the size of a man's two fists, which occupies the entire gland, and several smaller tumours extend from it along the dorsum, four inches. The tumour is so large that it is difficult to withdraw the penis from the prepuce; the latter is filled with pus, urine, and débris from the growths. The organ is amputated six inches from its extremity, and the stitches are removed on the fourth day. This case was treated at the Veterinary Hospital of Harvard

University, was laid up sixteen days, and discharged fit for work. It was seen a week ago, two months after the operation; the stump is cicatrised, and the notch is well-established; during micturation the organ is protruded a little beyond the entrance of the sheath.

Cases D and E were cases of relaxation from paralysis following Spinal Meningitis; otherwise the patients were in perfect health. They were operated upon as described above, with a successful result in both.

One other case, which was operated upon in a different manner, and terminated fatally, may be instructive. The subject was a bay gelding, about sixteen years old, sixteen hands high, and in an impoverished condition, also treated in the hospital; he presents a large cauliflower growth, a carcinoma, the size of a man's head, hanging just outside the sheath. At first sight it seems to invade that structure, but examination proves the penis affected. The glans penis is principally involved; the dorsum and sides also show similar growths for a distance of four inches. The exit of urine is interfered with by the large growth, which presses on the meatus. The patient is prepared, cast, and catheterised, evacuating three gallons of *normal* urine. The organ is ligated above the growths, and a circular dissection of the skin made anterior to it with a scalpel, and the remaining portion removed by the *ecraseur*; the urethra is divided and tacked to the skin as in the previous cases. Ligation is continued, and a silver canula is introduced into the urethra above the ligature, and kept *in situ* by tapes. When the animal is released and placed in loose box, exhibits slight colicky pains for two hours, afterwards lies down, and remains quiet until late in the evening, when he strains violently, passing no urine through the canula.

The next day, the 9th of the month, the conditions are loss of appetite, temperature 101.3° , pulse 80, respiration 18; is cast, and the ligature removed; at once a discharge of high-coloured urine escapes. The parts are treated antiseptically, and he is given internally a dose of purgative medicine, also small doses of Tincture Opii, with alcoholic stimulants at intervals during the day; in addition flax-seed tea is given, which is readily taken.

19th.—Temperature 101, pulse 136, respiration 24; passes large quantities of high-coloured urine during the day, accompanied by much tenesmus. During the evening the action of the purgative medicine was marked, and a reduction in the number of the pulse to 80.

From the 11th to the 14th the temperature ranges from 100-100·3°, pulse from 45-68, respiration 18-28; the appetite steadily improves. During these four days, at one o'clock p.m., it was observed that the pulse and respiration were accelerated for a period of two hours, pulse from 72-84, respiration 60-64.

14th.—Is re-cast, as the sheath is intensely swollen; the stump is hard to the feel, and the urethra is constricted one and one-half inches up, where it is dilated.

To the 21st there is improvement, the urine has cleared up, and there is less tenesmus; the sheath is swollen about the same, and is punctured on both sides, and the hæmorrhage resulting is stimulated by hot fomentations.

22nd.—The swelling has diminished, the appetite continues good, and the patient walks with less difficulty; the temperature is 100°, pulse 60, respiration 12.

23rd.—Is found down in the morning, and is helped up with difficulty; the sheath and scrotum are most intensely swollen, pitting on pressure, and rendering the animal almost unable to move. The countenance is anxious and haggard, and the body is covered by patches of cold perspiration. He soon lies down, and, when examined, shows a large fluctuating tumour at the superior wall of the prepuce, which nearly occludes its passage; when punctured a serious venous hæmorrhage ensues. At the end of the stump, filling the artificial notch, is felt a long shred of tissue, but whether a piece of ligature or mucous membrane it is difficult to decide. At six p.m. is in great distress, pulseless, straining violently, and passing small jets of urine, in which we noted débris of mucous membrane and pus. He is pithed, and the autopsy shows body very much emaciated; *abdomen*, the floating colon and small intestines present slate-coloured spots and streaks on their external surface; their sub-mucous coat is infiltrated with bloody serum; the bladder is strongly adherent to the small colon; the peritoneum shows sub-serous infiltration.

Penis.—The amputated extremity beyond the point of ligation is gangrenous; the mucous membrane of the urethra hangs from the notch a distance of five inches. There is found a complete slough of the mucous membrane of the entire urethra, extending into the bladder. The *sheath* shows marked Cellulitis, Thrombosis in the larger vessels, also a large diverticulum above the sheath, irregular in outline, and filled with very offensive sanious pus and broken-down tissue; the lymphatic glands are enlarged, some having undergone degeneration.

Bladder contains small quantity of urine, pus, and débris. The mucous lining has completely sloughed, its internal surface is yellowish-green in colour; the muscular coat is thickened and blackened by a phlegmonous inflammation; the ureters are also slightly involved. The etiology of this case seems to have been a sloughing, or progressive dissection, from the point of ligation backwards, probably due to the ligature itself, and from the irritation of the canula in the urethral canal, together with the absorption of necrosed material. What is worthy of note, was the low temperature throughout, and the very acute Cystitis developed when the urine was retained less than twelve hours.

PITYRIASIS (TROPICAL).

BY RICHARD W. BURKE, M.R.C.V.S., A.V.D., INDIA.

THIS form of skin disease, affecting principally the mane and tail of the horse, called "*Khajoollee*" (or Mange) in the language of Indian nosology, and shown as *Eczema papulosum* in the returns of some veterinary surgeons, and *Prurigo*, *Psoriasis*, etc., in those of others, appears to me to be simple Pityriasis, and for many reasons. It is attended by no one symptom, or symptoms, which may be said to belong to Eczema, save Prurigo, is not vesicular in its origin, and has no peculiarities especially characterising it to merit the above appellation. The disease is not an eruption in the form of a *vesicle*. It is a proliferation. Small papules are noticed to develop themselves in the course of the crest and about the root of the tail, and in due course

desquamation of the cuticle ensues about each papule, from which minute white scales are regularly shed ; and we have thus eventually produced a surface of "renewed desquamation," attended by fresh developments and increasing irritation, with its results ; extension of the process into the corium and subcutaneous connective tissue, which are sometimes themselves implicated from secondary inflammation—but the latter is always a complication, and does not furnish any reliable clue to the solution of the true pathological change found set up, which is in its inception distinctly *superficial* in character, and amenable to proper treatment. A prominent, and not the least troublesome, symptom of the disease is *prurigo*, which causes the subjects of it to rub themselves violently against adjacent articles, producing secondary symptoms of inflammation—heat, pain, swelling, abscess, and sometimes even permanent induration. *Sclerosis*, of the skin and subjacent connective tissue may follow as a remote termination, which, in a certain percentage of cases at least, proves of great diagnostic value, and heralds an attack of the disorder in the following year.

The crusts, which at first seem small, scaly, and transparent, become, during the later stages, larger, opaque, and even adherent from admixture with inflammatory products.

It is, moreover, important to note that this disease would seem to be confined to extra hairy parts, or to parts fairly covered by hair, not much to skin with little or no hair ; *instance*, the disease never spreads to the under surface of the tail, although it attacks every other portion of it supplied by long hairs.

Although attacking several horses in a troop of cavalry or battery of artillery simultaneously, this malady is not contagious in the ordinary acceptation of that term, as epithelial scrapings of papules from affected animals prove inoperative in reproducing the morbid process when inserted under the skin of others not similarly affected, even when special seats of the disease have been selected in the latter for experimental inoculation, viz., the mane and tail. The disease is not characterised by a pyrexial state, and is therefore *non-specific*.

One of the results of its action on the hair is evidenced in an undue coarseness of that appendage, which is especially charac-

teristic of this disease. Another remote, though not infrequent result of it is an apparent greyness of the hair noticeable in spots thus affected. These latter changes are, of course, dependent on inflammation, causing irritation of the hair-bulbs.

The disease, examined microscopically, shows, in the field of observation, epithelial cells, fibrils, granular particles of pigment, besides tissue shreds and other inflammatory products developed in the process of secondary inflammation.

In treating this disease I am afraid we are all apt to follow fashion, to prescribe remedies and modes of treatment at the time in vogue, and to forget the treatment which common sense, combined with a reasonable amount of previous acquaintance, would dictate to us. Although I am no believer in so-called "specifics," I respect the opinion of Erasmus Wilson, who recommends the use of tar, in one or other form, in cases of skin disease generally ; and so in my own hands I have found the use of *cheerpine oil* to promise the best results in the treatment of this form of tropical Pityriasis common to the horse in India. This preparation, to be of any good, must be applied, as experience indicates, in its undiluted state. I sometimes alternate my dressings with that of *kerosine oil*, which, in a small percentage of cases of this sort, has proved equally effective. A necessary preliminary to treatment will be the thorough cleansing of the affected parts by soft soap and warm water. The *nitrate of silver solution* has been occasionally here tried by me, but without evidence of its efficacy. My experience of the cheerpine oil is limited, since I have tried it for two seasons only, yet I may venture to entertain the apprehension that unless the disease for which it is especially appropriate be carefully determined, the good which it is doubtless capable of effecting will be lost to veterinary practice. I do not suppose that veterinary surgeons expect in the cheerpine oil, or any other article of the materia medica, a universal remedy for this form of disease of the skin common to horses in India ; but I have had opportunities of learning something of the action of cheerpine oil in this affection, and may safely pronounce it to be an improvement over all the other remedies suggested by a state of popular credulity. I have seen so many cases of the disease in the two

years, that I feel warranted in giving a strong opinion that any treatment to be useful should be early applied, otherwise the disease tends to assume a chronic type, and will then prove rather troublesome.

There is, perhaps, no subject in Indian military veterinary practice more interesting, and on which facts are more scanty, and its nosology less certain, than this, which must be my only plea for making these notes.

It is essential that all officers in charge of batteries of artillery or troops of cavalry out in India, having no veterinary surgeons attached to them, should be imbued with the idea of the importance of recognising the right *pathology* of disease before attempting its treatment on mere hit-and-miss principles. Hence we have to recognise what may be termed the *befingerte* and the *unbefingerte* types of cases to be met with in our service in India; and to the former cause especially we have to trace some of the untoward results of this disease I have just enumerated, but more particularly *permanent induration of the crest*, which is only produced as a result of certain heroic modes of treatment in operation. I do not desire that my treatment should alone be tried; I believe essentially the same results can be got by recourse to other as rational modes of proceeding. I do not therefore wish to dogmatise upon this or that preparation being employed, but in the selection of remedies for this affection let it always be done by one qualified for such a selection. It cannot be too strongly urged that *recurrence* in many cases also depends to a very large extent indeed upon how they were first dealt with. Internally, diuretics have been prescribed by me, with the view to relieving cutaneous hyperæmia.

Editorial.

PROFESSIONAL PROTECTION.

IN our correspondence columns a writer publishes a letter over the *nom de plume* of "A Surrey Veterinary Surgeon," drawing attention to a subject which we have frequently commented upon, and in which is involved a question that calls for prompt solution. Now that we possess an Act of Parliament giving us, among other privileges, the power to protect our own special titles, and to suppress and punish impostors who attempt to prey upon the public and the profession by designating themselves what they are not, and whose names are not to be found in the Register of Veterinary Surgeons, the problem is, How is the letter of the law to be carried into execution? The Act in regard to its operation in such cases is simplicity itself, the 16th and 17th Clauses distinctly specifying who are liable to prosecution, while Clause 19 determines how the law is to be carried into effect with regard to them. In the latter clause it will be seen that the procedure for fines and imprisonment is extremely simple, and involves but little trouble or expense to the prosecution, while the law is laid down so clearly that magistrates or justices should have no difficulty or doubt in dealing with such cases. So far, so good; but the question now is, Who is to undertake the prosecutions? The Act states that a prosecution *may* be instituted by the Council of the Royal College of Veterinary Surgeons, but shall not be instituted by a private person without the written consent of the Council. It is needless to say that the Council of the Royal College has no funds at its disposal for the institution of such prosecutions, and its poverty otherwise debars it from drawing upon any surplus it might have for other purposes; while, as a correspondent points out, if a member of the Royal College takes proceedings, after obtaining the sanction of the Council, he is not only out of pocket in doing so, but "he is simply bidding for his own unpopularity in his neighbourhood, and is immediately charged with selfishness." It is evident, therefore, that the plan we some time ago recommended, and which the "Surrey Veterinary Surgeon" also suggests, should be at once adopted. A society should be formed for the protection of the profession, and the prosecution of men who assume designations to which they have no right; it might be called "The Veterinary Defence" or "Veterinary Protection Society," and it should be maintained, as our correspondent suggests, by an annual subscription (which need only be small) from members of the profession. There is already a society in existence which, as its name implies, should be made to embrace this object. We allude to the Defence Society, which would have its reputation and its value enhanced, as well as its contributories increased, by undertaking this most useful and important duty. The profession must look after its own interests, for others will not; and now that we have ample legal protection afforded us, we have merely to put the law into motion in order to free ourselves from the injury and injustice caused by unprincipled persons. We hope soon to hear that the matter has been taken up energetically, and a commence-

ment made to carry out this provision of the Act; for we are cognisant of several instances in which certain of these individuals, either through ignorance or mere bravado, are palming themselves off as "registered practitioners," or even members of the Royal College, reaping whatever benefits may be attached to such titles, and deluding the public, which must now look to the profession to protect it while we are protecting ourselves. If this protection is not ensured, the fault is entirely our own, and not that of the country which has so liberally done its duty to us.

THE OUTBREAK OF THE EPIDEMIC AMONGST HORSES IN LIVERPOOL.

BEING A PAPER READ BEFORE THE LIVERPOOL VETERINARY ASSOCIATION

BY THOMAS GREAVES, F.R.C.V.S.

WE are met together to-night to consider further the cause of the outbreak of disease amongst the horses belonging to a firm in Liverpool, about last March. If my memory is correct, there were about thirty-two or thirty-five horses attacked; they were of all ages, and in different degrees of condition. In a stud of about seventy-nine or eighty horses, about fifteen of these thirty-five died—some dying in a few hours, others in a few days; the remainder recovered, some partially and others more completely. They were all attacked in the same obscure and extraordinary manner, without any assignable cause; some suffered more severely than others, being probably more susceptible. The reason all were not attacked was, some of them being less susceptible, or not susceptible at all; and this was the only stud of horses that experienced this attack of disease in Liverpool. The symptoms were a staggering gait and an affection of the larynx producing suffocation; and unless relieved by tracheotomy, death put an end to their suffering in a very short time. Ten were operated upon, and eight died. Their pulse was said to be normal, and bowels more or less inclined to constipation. These cases were unusual cases; there was an absence of initial febrile symptoms. They were exceedingly interesting cases. To me it is a matter of deep regret that the full particulars have not been recorded in the journals for the benefit of the profession, especially since such a full and scientific investigation and discussion have taken place upon it, and when we remember the kind interest which Professor Williams—who is one of the most experienced, most practical, and, at the same time, the best microscopist we have—has taken in the case, the time and immense trouble he has bestowed on investigating the matter microscopically. The conclusion he arrived at was that it was an Anthrax disease, that it was due to certain germs or bacilli in the blood (Professor Williams is still engaged in cultivating these germs), derived from the dirt encrusted on the outside of the lentils, or "mutters," as they are sometimes called, which the horses had been for some time fed upon, *without the slightest injurious effects being produced*. These lentils are really "koultee," described by Mr. Meyrick. It was said that these horses had been fed upon very indifferent hay for some time past. These cases were also very carefully investigated microscopically by an eminent surgeon, who had little or no experience in horse pathology or the symptoms of their diseases, and Mr. William Leather. They did not find it to be Anthrax disease; they studied the morbid anatomy theory, and found it to be an affection of the nerve cells and motor cells; fatty degeneration and atrophied muscles; paralysis, with

atrophy of the tissues in the neighbourhood of the larynx, the spinal cord, and its nerves. Now, these two eminent microscopists, Professor Williams and the surgeon, could not arrive at the same conclusion; the one could not believe in the theory of the other; nay, they could not only not agree, but were directly antagonistic to each other's theory; there was incompleteness in their premises and their conclusions. Now, one of them may have been right, and the other wrong; or they may have both been right or both been wrong in their conclusions on this abstruse problem. The ambiguous anomaly in which the case was left by these two adverse opinions or theories, formed on insufficient proofs, is likely to cause us to incline to the view (to say the least of it) that they must be highly problematical. I feel a desire to divest the case of the mystery that seems to surround it. To simplify it, we all want to see every doubt cleared away. Let us leave the region of theory, and pass into the region of fact and common knowledge, and, if possible, arrive at a safe and accurate conclusion, so that in future we shall be able to grapple with it and stamp it out at once. In the first place, then, let us direct our earnest attention to the character of the disease itself. Now, atmospheric epidemics soon expend themselves; not so in epidemics arising from poison in food or water. Was it any of those natural diseases known and recognised as constitutional diseases? I think the answer to this question will be, *No!* Was it some mysterious disease or epidemic which only pays us a visit at long intervals of time? The answer is, *No!* Was it some contagious disease, or some pestilence floating in the atmosphere? Again the answer is, *No!* Was it a consequence of living in a foul, ill-ventilated stable, breathing a vilely contaminated atmosphere ascending from putrid drains? Again the answer is, *No!* Was it from some impurity in the water the horse had to drink? The answer is, *No*; neither was it from the work the horse performed, nor from the severity of the weather. We are now bringing things to a focus; we are bringing the guilt home to the true cause. It was something which was contained in the food. The destroyer was, without doubt, concealed either in the general provender or in the hay. Let us try again to find him and drag him out to the light of day.

We are informed that these horses had been fed for some time on hay of an inferior quality. Well, what of that? Many other horses eat hay of an inferior quality, and no such result is produced; we are also told that these horses had been living for some considerable time previously upon mutters, lentils. Well, what of that? Many other horses eat lentils, without such results being produced. It was proved that these lentils were sound and good. The deleterious ingredient or principle, whatever it was, although washed, was said to be adhering to the outside of the lentils—I understand that one of the veterinary surgeons fed his private horse for some time on these lentils without the slightest injurious effect being produced. I believe that far the best and far the wisest thing to do is to hold them to be innocent in this instance. I hold in my hand a statement from one of the largest owners of horses in Lancashire, in which he says: "I have used scores of quarters of these lentils or vetches as food for my horses, and so far from their being dangerous, no horse could do better than they did while living on them; not the slightest ill effect was produced in any way." We know also that in India lentils are the principal or staple diet of thousands of horses, and that such an affection as these horses suffered from is entirely unknown there. Therefore I shall acquit lentils of any blame whatsoever in the production of this outbreak of disease in Liverpool, and dismiss the case so far as they are concerned. Professor Williams coincides entirely in this view. Mr. Meyrick has never heard of their producing such disease in India. All the evidence (according to my thinking) is very strong in fixing the blame on the hay—not necessarily bad hay, but hay happening to contain certain poison-

ous grasses. We know that some grasses or herbs, when cut at particular stages of their growth, when the bloom or seed is in a certain stage, are dangerous to health and to life; we know that in certain years in some localities there are fungus growths upon various grasses that are of a poisonous nature. Dr. Cobbold says many grasses are specially poisonous. The Russians lost seventy horses out of 300 in the Crimea from hay containing chickweed; we all know the deadly effects that ergot, hellebore, foxglove, and other plants have upon horses and cattle; we all know the deadly properties contained in yew. It is nothing to be wondered at that so many horses were attacked—twenty as likely as one, provided they be equally susceptible. There are many other herbs and plants that produce effects similar to those observed in these horses in Liverpool. I have been called in consultation on several occasions to outbreaks of disease of an alarming character, both in horses and in cattle; in each of them the disease was plainly traceable to some poisonous ingredients in the herbage, that was at once and totally discontinued. The plague ceased; of course those animals that had partaken of the largest quantities or those most susceptible, died, or might linger on for a long time suffering from the effects and damage done to the system. I dismiss every other theory in these cases. I think it is as clear as typhoid epidemic produced by sewage poison.

THE ROYAL ACADEMY OF MEDICINE OF BELGIUM.

AT the meeting of this distinguished Medical Corporation on May 30th, nine Foreign Corresponding Members were elected, among whom were Dr. Fleming, Principal Veterinary Surgeon of the British Army, Professors Bollinger (Munich), Brouardel and Paul (Faculty of Medicine of Paris), Hofman and Rosenthal (University of Vienna), Koch (Berlin University). At a more recent meeting of the Royal Society of Medicine and Public Hygiene of Belgium, Dr. Fleming was also elected a Foreign Corresponding Member. This compliment paid to the veterinary profession of this country will, we feel assured, be heartily appreciated by our colleagues, and will show the much higher and juster estimate in which veterinary medicine is held on the Continent than in this country. More especially is the compliment conferred by the Royal Academy remarkable from the fact that, though Sir James Paget, Sir Spencer Wells, Professor Huxley, and Drs. Carpenter and Bowman, are honorary members, hitherto the higher distinction of Foreign Corresponding Member has only been bestowed on one Englishman—Dr. Balfour.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF COUNCIL, HELD JUNE 1st, 1885.

H. J. CARTWRIGHT, Esq., in the chair.

Members present:—Sir F. Fitzwygram, Bart., M.P.; Professors Axe, Pritchard, Williams; Messrs. J. S. Carter, B. Cartledge, J. Roalfe Cox, E. C. Dray, W. Duguid, T. Greaves, M. J. Harpley, H. R. Perrins, A. H. Santy, T. H. Simcocks, H. L. Simpson, P. Taylor, W. Whittle, W. Woods, F. W. Wragg, and the Secretary.

The SECRETARY read the notice convening the meeting.

The SECRETARY announced the presentation of the model of a hunter to the Royal College by Mr. A. A. Jones, now in the Soudan.

Mr. CARTLEDGE proposed the thanks of the Council to Mr. Jones for his presentation; it was a very handsome gift, and well deserved their best thanks. He had himself very much admired the model when visiting the Academy last year.

Mr. DRAY seconded the motion, which was agreed to.

The Special Meeting.

Mr. DRAY said there was a statement in the notice of business that a special meeting was to be held that day. At previous meetings at that period of the year the only business transacted had been the election of officers. He had written to Dr. Fleming upon the point, and Dr. Fleming replied that the second meeting was informal, and that until the newly-elected Vice-Presidents had the opportunity of being present all business done would be *ultra vires*, the Council not being complete. He therefore thought the only business they could transact that day was the election of the officers.

Mr. SIMCOCKS said the same point was raised last year, and it was then unanimously decided that it was unfair to bring country members from long distances to transact purely formal business, and that therefore in addition to the election of officers there should be a special meeting for the transaction of other business.

The SECRETARY said for two or three years past there had been some doubt about this, and there seemed to have been a division among the Council. He had therefore consulted the solicitor, who would be present before the special meeting commenced.

Professor WILLIAMS called attention to the inconvenience occasioned to Scotch members owing to the meeting being convened for Monday. The usual practice had been to hold the meeting on the Tuesday before the Derby. In order to attend a Monday meeting, unless they were willing to travel on Sunday night (which, for his part, he objected to), it was necessary to leave Scotland on the Saturday morning. There were no trains on the Sunday until the night, the Scotch objecting to Sunday travelling. He hoped that in future the Council would take this into consideration.

The SECRETARY then read the minutes of the previous meeting.

Professor PRITCHARD asked whether it was a fact that their minutes were absolutely published before they were confirmed by the Council.

The SECRETARY said that was so. The profession wished to know the proceedings of Council as soon as possible.

Professor PRITCHARD said in that case he, as a member of the Council, should object to that proceeding going on any longer. It was a very improper course to take.

Sir Frederick FITZWYGRAM said the report that appeared in the VETERINARY JOURNAL was not the minutes of the proceedings of the Council, but the actual proceedings of the Council as taken down by the shorthand writer. They had no authority as minutes until they were confirmed by the Council. The public liked to see the records of proceedings as early as possible. It was the same in the Houses of Parliament; the debates were printed daily, but the authorised report did not appear until it was published by Hansard.

The minutes were then confirmed.

Letters were read from Messrs. Fleming, Walley, and Mulvey regretting their inability to attend the meeting of the Council.

A letter was read from Mr. H. E. Beddington calling attention to the conduct of veterinary surgeons.

On the motion of Mr. CARTLEDGE, seconded by Mr. TAYLOR, the letter

was ordered to be laid on the table, its receipt to be merely acknowledged by the Secretary.

Election of Officers.

Mr. CARTLEDGE moved the election as Chairman for the ensuing year of Professor Robertson, of the Royal Veterinary College. He was a man they all esteemed and who occupied a high position in the profession.

Mr. TAYLOR seconded the motion.

Mr. E. C. DRAY said he had been requested by several gentlemen to propose Mr. Cox as President. Mr. Cox possessed all the attributes calculated to make an excellent President, and he was sure the Council would not regret his election.

Mr. PERRINS seconded the motion.

Mr. CARTLEDGE said in that case he would withdraw the name of Professor Robertson. Mr. Robertson did not wish to be put in opposition to any other member of the Council, and inasmuch as his election would not be unanimous, he thought, with the consent of his seconder, he would withdraw Mr. Robertson's name. He should hope at some future time to see that gentleman the President of the Council.

The ballot was then taken, and Mr. Cox was declared to be unanimously elected.

Mr. Cartwright then vacated the chair, which was taken by the newly-elected President.

The PRESIDENT said he could not recall an occasion on which he had felt at so great a disadvantage. He had from some unknown reason always enjoyed very great consideration from the members of the profession, and of the Council in particular, but this last crowning evidence of their favour towards him had been most unexpected. He had not the slightest idea that such a thing was in contemplation, and, indeed, some fifteen months ago when, it was proposed to him by a too-zealous friend that he should be nominated, he begged that such a course might not be taken. He felt, however, that the honour was thrust upon him, and it would be most ungracious to say no. He would ask the Council to bear with him. By himself single-handed he should very imperfectly perform the duties of the office, but with their kind co-operation he hoped to be able to perform them to the satisfaction of the Council and to his own.

The following gentlemen were nominated as Vice-Presidents:—Messrs. Barford, Blakeway, Borthwick, Briggs, Cartwright, Edgar, O. Hills, W. Pallin, Reynolds, Alexander Robinson, J. F. Simpson, W. Wilson, and W. Woods.

On the ballot being taken Messrs. Cartwright, Pallin, Barford, Blakeway, Simpson, and Woods were declared elected.

The PRESIDENT said their next business was the election of Treasurer, and if Mr. Dray was willing again to accept the office, he scarcely thought that the Council would nominate any other gentleman.

Mr. GREAVES said he had great pleasure in proposing the re-election of Mr. Dray.

Mr. SIMPSON seconded the motion, which was agreed to.

Mr. DRAY said he was very much obliged to the Council for the compliment they had again paid him. He must remind them that their expenses and work were accumulating, and with what they had looming in the distance, they would be very heavy. It therefore behoved them to exercise a rigid economy, and they might rest assured so long as he held their purse-strings he should endeavour to preserve their finances as much as possible. As their treasurer he had had perhaps more opportunities than any other member of the Council of knowing how well their Secretary performed his duties.

Those duties were increasing, and he must say that Mr. Hill had faced those increasing duties with great zeal and energy. He therefore proposed that Mr. Arthur W. Hill be re-elected as Secretary to the Council.

Mr. CARTWRIGHT seconded the resolution, which was unanimously agreed to.

The SECRETARY returned thanks for his re-election.

The Special Meeting.

The PRESIDENT said that Mr. Thatcher, the solicitor to the College, was in an adjoining room if it was desired to take his opinion as to whether they could legally proceed with the business of the special meeting.

Mr. WHITTLE moved that Mr. Thatcher's opinion be asked upon this point.

The suggestion was agreed to.

The President having explained to the solicitor the point for his consideration,

The SOLICITOR said his opinion was that for the purposes of a meeting everybody entitled to be present at that meeting ought to be summoned. It appeared that some of the Vice-Presidents who had just been elected, and who were not present, were now entitled to be present at the meeting, and if the business was transacted in their absence they might afterwards dissent from what was done.

Mr. SIMCOCKS said he would suggest, as a somewhat similar state of circumstances would arise next year, that prior to the next quarterly meeting the Secretary should be requested to take from Mr. Thatcher an opinion as to whether a special meeting could be held on the day appointed for the election of officers either prior or subsequent to that election.

This suggestion was assented to by the Council, and the solicitor was instructed to report accordingly to the next meeting.

The PRESIDENT said as the solicitor advised that the summoning of this second special meeting was informal their business had now come to an end, and he had again to thank them very much for what they had done on his behalf.

Mr. DRAY suggested that a special meeting should be called within a fortnight from the present time, because it was extremely necessary that the various committees should be elected before the July meeting. The meeting of the Finance Committee should take place antecedent to the quarterly meeting, and that Finance Committee was not now in existence.

Mr. SIMCOCKS said a meeting for the election of the committees might be held, and if it was understood that no other business would be transacted it would not then be necessary for country members to come long distances in order to attend.

Mr. DRAY proposed that a special meeting should be called for the 17th June. At that special meeting all the business for which notice had been given that day could be transacted, and the committees could then be elected for the July meeting.

Mr. WHITTLE seconded the motion.

Mr. SIMCOCKS said that Mr. Simpson, Mr. Wragg, and himself would withdraw their notices for the next meeting, so that it might be understood that the special meeting for the 17th June was for the sole purpose of appointing committees and nothing else.

Mr. DRAY said that meeting would have to receive Mr. Thatcher's report.

Professor PRITCHARD said the Council must take into consideration this fact, that the committees did by far the greater bulk of the work of the whole year, and therefore their appointment should hardly be delegated to seven members of the Council.

Mr. SIMPSON asked what was the objection to postponing the election of committees until the quarterly meeting.

Mr. DRAY said the objection was that there were no committees in existence. The Finance Committee should meet antecedent to the regular meeting, and until that committee was reappointed no report could be brought up at the meeting by the Treasurer.

Mr. TAYLOR asked what objection there was to appointing the committees at once.

The PRESIDENT said the solicitor stated that it would be informal to elect committees at that meeting.

After some further conversation it was arranged that the notices of motion which had been given for the special meeting that day should not be taken at the meeting on the 17th June, but should be deferred until the quarterly meeting in July, but that any other business that was necessary might be transacted at the special meeting on the 17th June, in addition to the appointment of committees.

Mr. DRAY proposed his resolution in that form, that the meeting of the 17th of June should be for the appointment of committees and for other business.

Mr. WHITTLE seconded the motion, which was agreed to.

Mr. DRAY then proposed, and Mr. WHITTLE seconded, a vote of thanks to the President, which was agreed to.

Mr. WHITTLE proposed that the warmest thanks of the Council be given to Professor Walley, their late President, for the good service he had been able to render during his year of office.

Professor WILLIAMS seconded the motion, which was agreed to.

The Fellowship Examinations.

The SECRETARY said he had a list of twelve or thirteen gentlemen coming up for the Fellowship examinations, and asked that these might commence on the 24th of June, which was agreed to.

The New Building.

Mr. GREAVES asked whether any arrangements had been made with reference to laying the foundation-stone of the Royal College.

Mr. DRAY said if such a proposition were entertained it would delay the building at least a month.

Mr. SIMPSON thought that instead of a ceremony at the laying of the foundation-stone, it would be better to have a house-warming when the building was erected.

The proceedings then terminated.

CENTRAL VETERINARY MEDICAL SOCIETY.

A MEETING of the Society was held on February 5th, at the First Avenue Hotel ; Mr. F. W. Wragg (President) occupied the chair.

Mr. C. Sheather exhibited the novel shoe which he had devised and patented. The principle of its construction was the union of a tip with a leather sole, and a compound leather and india-rubber cushion at the heels. He showed the various portions of the shoe and pad in the different stages of manufacture, and explained the difficulties he had to contend with in securing a firm union between them. Among the advantages of the shoe are that it gives the horse a good foothold, and so lessens concussion that the natural elasticity of the pasterns and fetlock is allowed full play. Horses shod for a few months with these shoes have been found to travel with greatly

improved action, others have recovered soundness, and bent-kneed horses have regained a straight position of limb. He was of opinion that in the majority of cases bending of the knees was a consequence of pain at the posterior part of the foot ; the horse, being afraid to allow his weight to descend upon the heels, threw it more forward, keeping his pasterns upright by muscular exertion.

In answer to questions, Mr. SHEATHER said the first cost of the shoe would be greater than ordinary shoes and pads, but that the difference would be considerably lessened by taking into account the long time the shoe is found to wear. In many cases, after a month's wear it was only necessary to renew the iron tip. Then the cost of production would be vastly lessened directly a large demand arose for the shoe, as the new machinery constructed would quickly turn out a great number. Above all points, in estimating the relative value of this system of shoeing, was to be reckoned the great saving of horse-flesh ; it was in the legs that horses used for hard work in towns first failed, and there was, he said, in this method of shoeing the means of preventing that injury to the feet and limbs which resulted in time from ordinary shoeing.

Mr. Sheather's exposition and theories were followed with great interest, and the time taken up being considerable, it was resolved to postpone further consideration of the matter till the next night of meeting.

Another monthly meeting was held on March 5th, at the same place ; the Fellows present were Messrs. F. W. Wragg, W. Hunting, T. S. Price, Professor Pritchard, and Mr. T. Moore.

The discussion was commenced by Mr. W. HUNTING, as follows : I did not hear Mr. Sheather's remarks at our last meeting, but I have read his pamphlet, and am struck by the fact that it was written after a complete trial of the shoe ; it is therefore no hypothetical theory of expected benefits, but a scientific explanation of proved results. We have given us a clear idea of the way in which the shoe does good, and there is well explained the gross injury done to horses' feet, and indirectly to their legs, by bad shoeing. The pamphlet starts with the assumption that horses' legs wear out more quickly than they ought, and that the animals are prematurely "used up." Mr. Sheather says this is chiefly due to bad shoeing, and I think we can agree with him ; he says we see the effects in the changes in the position of the limbs long before there is any definite symptom of injury to the foot ; this, though a new idea to me, appears extremely true. Horses with bent knees and defective gait, when shod with these shoes, recover the straightness and strength of their limbs ; why is this ? It is because they lose the pain in their feet which was the cause of the evils mentioned. When Mr. Sheather first tried this shoe he did not anticipate anything approaching the good results he has obtained.

Mr. SHEATHER : Certainly I did not ; my chief expectation was to remedy and prevent corns.

Mr. HUNTING : The elastic nature of the leather at the heel of the shoe is a good point, and there is a useful pressure upon the frog ; functional activity at the posterior part of the foot is encouraged, and corns and lameness prevented. Another advantage, which will be valued in these days of wood and asphalt-paved streets, is that this shoe gives the horse a firm foothold on a smooth or slippery surface. It may be that at some time some of you will have a brilliant idea which will enable you to supersede this patent with something simpler, but at the present time there is nothing easier in application nor more durable than the shoe before us.

Mr. DUDGEON said he could endorse all Mr. Sheather had said regarding the benefit derived from the use of the shoe ; he had tried three pairs on a very bent-legged horse, each pair lasted a month while the horse was doing daily work amounting to ninety-eight miles a week, and at the end of the

three months there was a very great improvement in the position of the horse's legs. He had found that farriers could put the shoes on quite as quickly as they could ordinary ones.

Mr. Sheather showed various photographs illustrating his remarks. One represented a horse with very bent knees, and was taken before he had commenced wearing the patent shoes. From a second photograph taken after a two months' trial of the shoes it was evidently seen that straightness of legs had been restored.

Professor PRITCHARD said he had no practical knowledge of the usefulness of the shoe, but that it appeared to be a very reasonable invention. He considered that the Society was indebted to Mr. Sheather for laying the matter before them, and that a vote of thanks should be accorded him.

Mr. BROAD, in seconding the proposition, said he would add that the Fellows present were thoroughly impressed with the practical merits of the shoe, and recognised its usefulness.

The thanks of the meeting were unanimously accorded, and Mr. Sheather replied.

ALFRED BROAD, *Secretary.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE spring quarterly meeting was held at the Queen's Hotel, Leeds, on Tuesday, the 28th of April; the President (Mr. J. E. Scriven) in the chair.

The SECRETARY read a letter that he had received from the Hon. Sec. of the Royal Counties Veterinary Medical Association, respecting the rescinding of Clause IX. in the Supplementary Charter; after some discussion it was resolved to consider the matter at the July meeting.

Mr. TOOP complained of some articles on Veterinary Medicine and Surgery from the pens of the Messrs. Gresswell, now being published in the *Yorkshire Post*, and was of opinion that this procedure was entirely unprofessional, and calculated to promote quackery, and injure the veterinary surgeon in his daily practice.

After some discussion, it was resolved "That the President, Secretary, and Mr. Greaves indite a letter to the Messrs. Gresswell, expressing the disapprobation of the members of this Society with their unprofessional conduct."

Mr. TOOP read an able and interesting paper upon "Rheumatism." A practical discussion ensued, in which Messrs. J. S. Carter, Greaves, Fletcher, Axe, Peter Walker, Bowman, P. Carter, Broughton, and the essayist joined.

Mr. SMITH moved, and Mr. P. CARTER seconded, a vote of thanks to Mr. Toop. Carried unanimously.

Mr. FLETCHER kindly promised to read a paper at the July meeting upon "The Diseases of Swine."

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE eighty-third quarterly meeting of this association was held in the Medical Institute, Hope Street, Liverpool, on Friday, the 8th May, 1885. In the absence of the President, J. W. T. Moore, Esq., Mr. Edwards, Vice-President, took the chair.

Messrs. Locke (Manchester), and Davies (Bootle), were elected members of this association.

The SECRETARY read a letter received from the Royal Counties Veterinary Medical Association, respecting the rescinding of Clause 9 of the Supplementary Charter.

Mr. HURNDALL, of Liverpool, in a very able speech, proposed the following resolution, which was seconded by Mr. STORRER, of Chester, viz. :—
"That whereas the time is approaching when Clause 9 of the Supplementary Charter, granted by Her Majesty the Queen on the 23rd August, 1876, will

come into operation and effect, this meeting is of opinion that the present is a suitable opportunity to pronounce against the said clause standing upon the said Charter of 1876 any longer, inasmuch as the majority of the members of this association are of opinion that to restrict the election of representatives to serve on the Council Board to those practitioners who hold the Fellowship degree is calculated to deprive the profession of much valuable counsel, to inflict an injustice upon a very large majority of the members, and to place too much power regarding the politics of the profession in the hands of a limited representation; and that the President and Members of Council be requested to take the necessary steps to have the said clause rescinded at their next meeting, or at the first opportunity, so long as it takes place before the said clause can come into operation."

A warm discussion afterwards took place, Messrs. Thomas Greaves (who read a letter from Dr. Fleming on the subject), Peter Taylor, W. A. Taylor, Thomas Briggs, Whittle, Woods, and George Morgan, all speaking strongly against the rescinding of the said clause. When put to the meeting, the resolution was lost by an overwhelming majority.

Messrs. E. Faulkner and A. Leather exhibited a number of improved veterinary instruments, viz., probang, trephine, tooth-rasp, trocar and cannula, aspirator, écraseur, etc.

Mr. H. SUMNER then read a short paper on the "Action of Purgatives." On account of the late hour of the evening, the discussion was postponed until the next meeting.

THE ACTION OF PURGATIVES.

Mr. President and Gentlemen,—I will preface my remarks upon the "Action of Purgatives," by a reference to the action of medicines generally. As this is a great and important subject, my reference to it will be necessarily short and incomplete.

The great majority of medicines must enter the blood or internal fluids of the body before their action can be manifested.

The mere contact of a medicine with the stomach is not usually sufficient for the production of its peculiar action upon the system, exception being taken to those medicines given with a view of promoting some topical action upon the membrane with which they come in contact.

The entry by the internal fluids may be demonstrated by the topical application of such remedial agents as chloroform, belladonna, etc. When such an agent is rubbed upon the skin, as soon as it has penetrated the cuticle it paralyses the superficial sentient nerves, which are bathed in the interstitial fluids of tissues directly containing the agent employed. Thus it is easy to act upon them without passage through the blood, and if the application is considerable it may be taken into the blood and produce its peculiar action upon distant organs.

This mode is most useful when such parts of the structures of the eye as are not directly supplied by blood are desired to be acted upon.

Medicine, when exhibited, can only by absorption obtain entry into the blood, except when it is directly injected into the blood-stream.

Does a medicine act by mere contact with the stomach, its influence being transmitted to distant parts by nerves, or does it pass into the system acting through the blood and fluids?

Without entering into the many arguments upon this question, I may mention a few experiments and facts.

Magendie and others found, from carefully-conducted experiments, that nervous continuity was not necessary for the actions of medicines, but that vascular connection was.

Also that medicines introduced directly into the blood-stream act in the same manner as when given *per oram*.

The circulation is sufficiently quick to account even for the operation of those poisons which act rapidly, by influencing the nerve centres; such agents as prussic acid and ammonia are so rapid in their action, that we might easily suppose it was due to nerve-transmission.

The observations and experiments of Dr. Blake and others, upon the length of time occupied in the completion of the round of circulation, are such as to account for the speedy action.

He found the round of a dog's circulation was completed in 9 secs., and that of a horse in 20 secs.

Various theories have been propounded as to the absorption of medicines, but only that of endosmosis we will briefly consider.

Pouisenille found that serum would pass through an animal membrane to a solution of sulphate of soda of greater specific gravity than itself, and upon this fact he based his theory.

It was "that an ordinary saline purge, of greater density than serum (1.028), acted by causing serum to pass into the intestine in quantity greater than ordinary, producing watery evacuations." It was supported by Liebig, Millon, and others. They said that when a saline is absorbed it causes diuresis, and when it is not absorbed causes purgation; differing in its action according to the amount of dilution, being largely diluted when diuresis was desired. But the kidneys will not eliminate more than a certain quantity of a salt, and according to the amount of fluid given, so will the amount of diuresis depend, and not upon the amount of the salt administered. Purg-ing is essential to rid the system of an abundance of that which is not a constituent of the blood, and which cannot be eliminated by the other emunctories. Analogy is against this theory; other purgatives from the vegetable kingdom, when injected into the blood, are productive of watery evacuations. What effect on process of endosmosis can be exerted by oleaginous purgatives or by magnesia? It was laid down by Boerhaave that pressure was necessary for absorption of chyle; and if this theory of the endosmotic action is correct, for this pressure there is no need; and even supposing the fluid of greater density than serum, being in the canal it must become diluted, and then would pass through.

Again, in the secretions of the body the specific gravity of the urine, bile, etc., is above that of serum, and if endosmosis was essential in one, how is it that they are not diluted to the common specific gravity before excretion?

Seidlitz and sea-water are both of lower specific gravity than serum, and they are purgatives. I trust what I have dwelt upon will suffice to confirm us in the opinion that medicines are taken into the blood or internal fluids, before they can produce their specific action upon the various organs of the body.

Before at once considering the action of purgatives, I will glance at the class to which they belong, viz., eliminatives. This class of medicines act by passing out of the blood by various and special glands, which they excite to increased secretion.

There is one general law of secretion, which should be clearly understood, viz., That it is the especial office of each gland, or set of glands, to secrete from the blood particular matters, and to pass them out of the system; some of such secretions are again used in various parts of the body.

The power of this ability is attributed to the selective cells of the glands. The glands afford the only means whereby a substance can make its exit from the blood.

This selective secretion applies not only to the normal constituents of blood, but to those which, by accident or man's design, are introduced into the system, and which, being foreign, must be excreted. Eliminatives are medicines which pass into the blood. They cannot remain there, and must

pass out. They pass out by some glands more than by others ; and in so doing they excite the gland to increased secretion.

Their use is indicated when the function of a gland requires restoration or promotion.

With this short reference, I shall now pass to the subject proper of my paper—the action of that class of eliminatives which are termed purgatives, cathartics, evacuants, etc.

Purgatives, like most medicines, are chiefly absorbed in the small intestine ; they excite watery evacuations with increased frequency, by increasing the secretion of the glands of posterior intestine.

From the presence of the astonishingly large number of glands in the posterior intestine, especially those of Lieberkuhn, this portion of the tract is especially destined for copious secretion.

In severe cases an outpouring of blood also occurs (the fluid portion containing altered albumen, albuminose).

Purgatives may be divided into the indirect and direct.

The former division simply acts by irritating the membrane, causing excessive secretion and peristalsis ; the latter produced by reflex nervous action—such materials as the husks of seeds, straw, and other coarse indigestible fibre, in large quantities.

An intermediate class of medicines act both by absorption and irritation. Amongst these may be mentioned gamboge, aloes, and scammony, which are in their action true eliminatives. Some purges act by irritating the muscular fibres ; others do not act except they enter the blood-vessels and are mixed with the mass of blood.

Direct, or true, purgatives are medicines which, at whatever part of the system they gain entrance, their action is uniform, and also they are received into the blood, and are true eliminatives.

Intravenous injection, absorption through the skin, or from the mucous membrane of the respiratory tract, where the finely-powdered drug may drift, is uniform. They are eliminated by the glands of posterior intestine.

When medicines of this class are given *per oram*, they are chiefly absorbed in the small intestine, and elimination occurs as in the others where the drug is not at once placed in the alimentary canal (the glands of posterior intestine). True purgatives not only clear the intestinal tract of its contents, but they also purge the blood.

We may divide purgatives into three groups—viz., mercurials, oils and acrid principles, and salines.

Mercurials tend to increase all the secretions, and are pre-eminently cholagogues, and should be given in conjunction with another purge to clear them out of the system where they are prone to accumulate.

Resins, etc., include most of our range of purgatives ; they are rendered soluble by the alkaline secretions.

I may here mention that many of our drugs (and especially is it the case with aloes) are more potent in their resinous state than are their active principles or alkaloids ; probably the resins have some important part to play in the production of purgation.

Aloes acts more especially upon the posterior intestine ; hence great care should be used in its exhibition to pregnant animals.

Dr. Hamilton, in his work upon purgatives, expresses his opinion that aloes and rhubarb, given continuously, lose their potency upon the subject, owing to a bitter and astringent matter along with the purgative principle.

Such is not the case with castor oil, jalap, and scammony.

Of the oils, three are common in our practice—viz., linseed, castor, and croton. The first-named is the more generally used ; it is a mild and a safe purgative, gentle in its action, and seldom attended with untoward results.

Castor oil and that of croton are chiefly used in ruminating animals ; they are both more drastic than linseed. I think I need not dwell upon the use of croton as a purgative ; it is most drastic, and, I think, only applicable in cases of impaction in cattle.

The salts of the alkaline and earthy metals are all more or less purgative, differing in properties, and depending upon the amount administered.

In small doses they may be excreted by the kidneys ; in larger doses they cause purgation ; some small amount may pass off through the glands of the skin.

In an ordinary state, the secretion of the skin is not perceptibly increased, although in many disorders of the skin a very salutary effect is produced by the action of mild purgatives. Salines are hydragogues ; hence they require much water for the required action ; and in excessive elimination the altered albumen of blood may also pass out, as previously mentioned. When vegetable salts are given in small doses, they are formed into carbonates, and so act upon kidneys.

The various purgative agents pass out of the system with the excessive secretion to which they give rise. The metallic salts are readily identified ; the resins of aloes, rhubarb, etc., have all been clearly shown to be present in the evacuations.

Buchleium prevented the operation of saline purgatives by the joint administration of tannic acid and morphia.

When a purgative fails to act, other glands have to take upon themselves an extra share.

The kidneys being the great water emunctories do a large share. Animals disposed to profuse sweating are difficult to purge. Dr. Ward records a case of a woman who, after receiving a dose of castor oil, her skin excreted the oil, the bowels remaining unaffected. Purgation is complementary to the other secretions. When sweat and urine are parted with in large quantities, purgation is not profuse ; in the opposite conditions it is copious.

In some cases of renal disease, as in "Bright's," the diarrhoea which often accompanies it proves that the intestines are endeavouring to overcome the deficiency of the kidneys, and so clear the blood of much effete material. A case of a boy is recorded who lived seventeen years, never having passed urine ; diarrhoea was, however, always present (Dr. Richardson, "Physiological Transactions," vol. xxviii.). In some plethoric animals, where there is a redundancy of blood, it is difficult to produce purgation, and the use of sedatives in conjunction with the purgative is suggested, it having been followed by the desired results.

The ultimate action of purgatives is to reduce the volume of blood, thereby favouring absorption, excite the bowels to their proper function, and to clear the alimentary tract of irritating material. As to the comparative uses of this valuable class of medicines in the practice of the medical profession and in our own, I may say that they are more generally used in the former practice ; and, as an instance in that practice, I may mention that, in the initial stages of fever, the treatment is to clear the intestinal tract.

Purgation is somewhat easily controlled in man, but in the lower animals such is not the case ; and it is from this fact, I think, that we so sparingly use them in similar cases. More especially is spontaneous purgation accompanying fever in the horse difficult to combat.

In cattle, purgation is not so excessive, and is certainly not attended with such serious consequences.

I will not further detain you with the effects of purgation.

I may, however, add that purgatives lower the vital forces, producing more or less nausea, according to the amount of the drug administered, the effect produced, and the temperament of the animal. I will not here treat of the

advisable precautions in the administration of purgatives, the preparation of the subjects for their reception, and the treatment of those untoward and unsatisfactory consequences which there is no doubt it has fallen to the lot of most of us to encounter. I regret time will not allow me to consider more fully this important subject, and I sincerely thank you for your kind attention.

A vote of thanks was proposed by Mr. GREAVES, and seconded by Mr. MORGAN, to Messrs. Faulkner and Leather for their interesting exhibitions, and also to Mr. Sumner for his instructive paper. Carried unanimously.

The usual vote of thanks to the Chairman terminated a very interesting meeting.

EDWARD KITCHIN, *Hon. Sec.*

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

THE usual quarterly meeting of this Society was held in the London Hotel, Edinburgh, on Wednesday, May 20th, the President, Professor Williams, in the chair.

Professor WILLIAMS said he desired to retract the statement, which he had made in his inaugural address that Professor Robertson had voted against the resolution appointing four additional examiners to the "C" board. He regretted having made the mistake, and wished the retraction to be entered in the minutes of the meeting.

Some of the members being of opinion that two o'clock is an inconvenient hour for the meeting to commence, it was suggested by the chairman that the hour should be altered. The subject was discussed by Messrs. Rutherford, Cameron, Hutton, Burnett, and others, and Mr. Cameron gave notice that at the next meeting he should propose that the hour be changed.

The SECRETARY then read a letter from the Royal Counties Veterinary Medical Association, requesting the members of the Scottish Metropolitan Society to co-operate with them for the purpose of getting Clause IX. of the supplementary charter of 1876 rescinded. After the subject had been well discussed, the secretary moved—"That it is the opinion of this Society that it is not expedient to have Clause IX. rescinded."

Professor W. O. WILLIAMS seconded the motion.

As an amendment Mr. RUTHERFORD proposed—"That this Society hereby petitions the Council of the R.C.V.S. to reconsider, with a view to their modification, those clauses of the supplementary charter relating to the admission and privileges of the Fellows."

The amendment, seconded by Mr. FINLAY DUN, was carried.

Mr. RUTHERFORD then gave a very interesting description of four cases of Tetanus following severe burning, and a case of heart disease attended with lymphangitis. The cases were discussed by Professors Williams, Walley, Baird, and others.

Professor WALLEY exhibited the following specimens—Intestines showing the ulceration of Swine Fever; Anchylosis of the occipito-altoid articulation, resulting from Poll-evil; Tumours from intestine of fowl affected with gregarinosis.

Mr. CUNNINGHAM, of Slateford, exhibited three large intestinal calculi.

Professor WALLEY gave notice that at the next meeting he would propose that Mr. Bartley be elected a member of the Society.

The meeting terminated with the usual votes of thanks.

T. HERBERT LEWIS, *Hon. Sec.*

ONTARIO VETERINARY COLLEGE.

WE have received the report of the Examinations and presentation of prizes of this school in Upper Canada, from which it appears that the past session has been the most successful since its establishment, there being students from all parts of the United States and Dominion of Canada. The prize list was read by Professor DUNCAN, and the prizes were presented by the Lieutenant-Governor, Professor Goldwin Smith, etc.

The Principal, Professor Smith, presided.

The LIEUTENANT-GOVERNOR made a few remarks after the presentation of prizes. He said he was present two years ago at the presentation of prizes, when he had listened to a most excellent account of this institution, and of the success with which it had met. He was glad to be present on this occasion and hear a still more flattering report of the progress of the College. He complimented Dr. Smith very highly on the reputation which the College had attained, as was shown by the number of students from abroad who attended it. Colonel Gzowski also spoke in flattering terms of the progress made by the College, and the work it had accomplished in the interests of the profession.

MONTREAL VETERINARY COLLEGE.

THE examinations of this College took place at the end of March, when the names of those who had successfully passed, as well as the prize-takers, were announced.

Mr. LESSAGE, after the distribution of the diplomas and prizes, addressed the meeting. He said that he had been sent specially by the Government to express their high appreciation of the Veterinary College, which was a credit to the province, and for himself he must express the great pleasure he experienced in being present to-day. He dwelt at some length on the value of the stock and dairy industries of the country, and the immense importance of such a profession and such a school as this to deal with those contagious diseases of animals to which they were liable, and concluded an eloquent address by congratulating those who had obtained their diplomas, and wished them every success in the profession they had embraced.

EPIDEMIOLOGICAL SOCIETY OF LONDON.

Variola and the Varioloid Diseases of Animals.

AT a meeting of the Society on the 13th May,

Dr. E. F. WILLOUGHBY read a paper on Variola and the Varioloid Diseases of Animals. He said that a number of animals—as the sheep, goat, camel, swine, and, according to some, the dog—are subject to diseases resembling in all their phenomena that known as Small-pox in man, and which may therefore be called Variola Humana, Ovina, Caprina, Camelina, etc. They are all highly infectious to animals of the particular species to which they belong, attended by high fever, a general vesicular or pustular eruption, and great danger to life; not communicable to animals of other species except by direct inoculation, and then producing a local affection only, with little constitutional disturbance and no danger to life. One attack, however induced, confers immunity against the particular disease; but they are not mutually protective. Horse-pox and Cow-pox differ in several essential features from the foregoing; they are purely local affections, unattended by much fever or any danger, are not infectious, but, though said to appear spontaneously in rare instances, are communicable only by inoculation, when they confer immunity not only against subsequent inoculations, but also

against the infection or inoculation of human Small-pox. Though experiment shows that they can be inoculated on any part of the body of horses and cattle of either sex and of any age, the so-called spontaneous cases are always seen to occur on the heels of horses, the udders of milk-cows, and the lips of sucking calves. On these facts two opposed theories have been built: one, which may be called the French doctrine, though accepted by Böllinger in Germany and Fleming in this country, is that there are two orders of Variolæ, in one of which the virus is, as Fleming expresses it, "volatile," and in the other "fixed." In other words, while inoculation with Small-pox protects man against Small-pox, and inoculation with Sheep-pox protects the sheep against Sheep-pox, though Small-pox does not protect against Sheep-pox, nor Sheep-pox against Small-pox, yet Cow-pox and Horse-pox confer immunity not only against one another, but against a totally unlike disease—namely, Small-pox. The other, and certainly the correct, view, held by the best authorities in England and Germany, except those above mentioned and by Dr. Warlomont, is that while the Variolæ proper are so many distinct specific diseases, peculiar to the respective animals, though capable of being communicated in a modified form to others by direct inoculation, Cow-pox and Horse-pox are not independent diseases, but merely instances of the cultivation of human Small-pox in the organism of another animal. Since "vaccination" has been proposed as a prophylactic measure against Sheep-pox, and other suggestions of a like kind have been made from ignorance of the true relations of these diseases, it is of the highest importance that the law of immunity should be clearly understood. It may be expressed in four theses: 1. One attack of Variola of the kind proper to any animal protects the individual against subsequent infection or inoculation with the same. 2. Inoculation of any animal with the virus of its own Variola produces a milder form of the same disease, but affords a protection similar to that conferred by an attack acquired by ordinary infection. 3. Any Variola inoculated in an animal other than that whose Variola it is, gives rise to a peculiarly modified form of the disease, attended by little constitutional disturbance, merely local congestion, and no danger to life; such modified disease being no longer communicable to any other animal of the same or of different species except by direct inoculation. 4. This modified disease affords a considerable degree of immunity against infection by any means whatever with the Variola whence it was derived, either to the animal whose Variola was the original source of it, or to others capable of being infected in any way thereby.—In the discussion which followed, the President, Drs. Renner, Pringle, Gordon, C.B., Murray, and Mr. Shirley Murphy took part.

PATHOLOGICAL SOCIETY OF LONDON.

At the meeting of this Society, held on February 17th, Mr. J. BLAND SUTTON made an elaborate communication on

Pulmonary Diseases in Wild Animals,

In which he gave a general account of the zoological distribution of certain forms of Lung Disease among wild animals dying in the Zoological Society's Gardens during the past three or four years. The opinion held by the medical profession and the world at large, that wild animals in captivity died from Pulmonary Tuberculosis, lacked foundation, and was certainly erroneous. The conclusions drawn were founded on the following series of cases. From October, 1881, to December 31st, 1884, the total number of deaths was 2,779, made up of 583 mammals, 1,408 birds, and 788 reptiles. Of the 583 mammals, there were 303 quadrumana, including 7 anthropomorphous apes. Of these

mammals, 5 died from Pulmonary Tuberculosis—namely, a tree-porcupine, eyre, kinkajou, lagotis, and an agouti ; only one case of General Tuberculosis was seen, and that was in a coatimondi. It was remarkable that all these tuberculous animals came from South America and the tropical portions of North America, a region named by zoologists the “neo-tropical region.” It differed from all the great zoological divisions of the earth’s surface by the almost unequalled extent and luxuriance of its forests, its delightful climate, and the richness and variety of its animal life. It was also the home of the guinea-pig. Pneumonic Phthisis had been seen in 12 cases, of which 5 were monkeys, and the rest carnivora. Even if these cases, by the utmost elasticity of the term Tubercle, were included, Tuberculosis was a very unfrequent cause of death in wild animals. The lungs, in many of the cases of Tubercle, were examined by Dr. Heneage Gibbes for bacilli, and he found them present, not in thousands merely, but in millions. Dr. Gibbes had worked out some very important facts in connection with these micro-organisms ; but this part of the research was left entirely in his hands, and the results would be published in a separate paper. Since mammals in confinement did not die from Tuberculosis, it became necessary to give an account of their fatal diseases. It might be broadly stated that each group of animals had certain forms of chest affections common to the group. Thus, primates, excluding man, suffered from Bronchitis, Atelectasis, and Lobular Pneumonia. Carnivora were exceedingly liable to Double Pleurisy, Lobar Pneumonia, and Bronchitis ; whilst ruminantia had the peculiar disease known as Perlsucht (the so-called Bovine Tuberculosis), Bronchitis, and Worm-bronchitis. It would be seen that Bronchitis, zoologically speaking, was widely diffused ; and this was to be accounted for by the vicissitudes of the English climate, in contrast to the tropical climate to which many of these animals were accustomed. Although birds had been excluded from this report, so far as Tuberculosis was concerned, yet there was one pathological condition peculiar to them which was of great interest. It was well known that in birds the bronchia were in communication with a series of membranous cavities known as air-sacs. It happened, with especial frequency in water-fowl, that the lining membrane of these sacs inflamed, giving rise to exudation. This inflammatory matter coagulated, and often formed a covering half an inch in thickness, which formed an excellent nidus wherein the mould, penicillium, might luxuriate and form a thin layer throughout the entire series of these air-chambers. Hunter, Owen, Müller, Robin, and others, had noted the presence of mould in the air-sacs of birds, but they all seemed to have overlooked the exudation. The interest of this condition lay in the fact that this mould did not confine itself to the air-sacs, but even permeated the intercapillary air-sacs of the bird’s lung, which corresponded to the alveoli of the mammalian lung. In view of these facts, was it a matter for wonder that, in the human lung, vegetable organisms, a fraction of the size of the spores of penicillium, requiring similar conditions for existence, occurred ; such as were recognised under the name of bacilli ? It was impossible to narrate all the details of the numerous cases of pulmonary affections which were to be observed. The “field of work” such an inquiry opened up to those who had the leisure and opportunity was immense.

Dr. CARRINGTON thought that before any conclusions could be safely drawn from the classification adopted of tubercular and other diseases, more details of a clinical kind were wanted.

A conversation ensued, and Mr. SUTTON’S replies to the various questions put to him may be summarised as follows. He had used the presence of Tubercle bacilli as the test to discriminate cases of Tubercle and Phthisis from those of Pneumonia in doubtful cases. In 303 quadrumana, the proportion of deaths from pulmonary disease alone was about 30 per cent. He

considered Bovine Tuberculosis to be a distinct disease from Human Tuberculosis, its lesions and ultimate effects being very different from those seen in man. Dr. Klein had shown that the bacilli in the bovine form differed, not only morphologically, but in their distribution, from the Tubercle bacilli of Koch. Dr. Heneage Gibbes inclined to the same view. "Worm"-bronchitis was a recognised affection in animals, frequently seen in young calves; it had obtained the name of "Hoose" Disease. It was caused by an immature worm, a "strongyle," getting into the trachea, and ultimately finding its way into the pulmonary alveoli. It caused often distinct bulgings of the pleura, which felt like small knots, and was now and then mistaken for Tubercle. Up to the present time, the bacilli had been found to occur with greatest frequency in cases of Pneumonic Phthisis. When the paper was published in the *Transactions* of the Society, full statistics of the pulmonary diseases would be appended. All the conclusions set forth in the paper had been drawn with great care, and if there were any error in discriminating between the cases, too many had been classed tuberculous rather than the reverse.

At the meeting on April 7th, Dr. NORMAN MOORE showed a specimen of Tuberculosis of the kidneys of the ox with bacilli. The kidneys were much enlarged, and one completely changed into a great white mass, with hardly any remains of kidney structure except the external lobulation. One lobe of the other kidney had undergone a similar complete change, and elsewhere it showed numerous white nodules. These, as well as the completely changed kidney, showed abundant groups of bacilli, and the bacilli themselves agreed in form, method of staining, and size with the bacilli of tubercle in man. The tuberculous part of the kidneys was nowhere broken down, but showed many zones of more or less complete calcification. The morbid change corresponded to the description of "Perlsucht," and the abundance of bacilli present confirmed the opinion that that disease was a true variety of Tuberculosis, and not a lympho-sarcomatosis, as it was once believed to be.

Dr. DICKINSON gave an account of an epizooty of Renal Disease in oxen, which had happened on the farm of a gentleman, an experimental farmer. The epidemic of "red-water" broke out in a herd of shorthorn oxen, and affected at least half the number with almost uniformly fatal result. The urine was loaded with blood, and there were casts of enormous size; turpentine was used as a remedial agent. He had examined the kidney of an ox which had survived the attack of Renal Disease six months. The kidney was in a typical state of interstitial nephritis. One kidney was more affected than the other; they were granular on the surface. The cause of the epidemic is unexplained. Some said it was the use of poor after rich pastures; others said it was digitalis; possibly the ingestion of "bracken" might account for the disease.

Actinomycosis and Typhoid Fever in Monkeys.

At the meeting on May 5th, Mr. SHATTOCK showed two specimens of Actinomycosis of the Liver, which he had found in the museum at St. Thomas's Hospital. There was no doubt about the presence of the fungus, and sections were placed under the microscope. With one of the specimens there was a history. The specimen came from a girl aged fifteen, who was believed to have died from "scrofulous" disease, which affected chiefly the ovaries and Fallopian tubes.

Mr. BLAND SUTTON read a paper on Typhoid Fever in Monkeys. Dr. Budd and Professor Axe considered that the typhoid fever, purple or red-soldier, was the same disease as typhoid fever in man, but Dr. Klein had

found that there was nothing in common with the disease in man. Mr. Sutton had reported some cases of Typhoid Fever which occurred in lemurs living in the monkey-house of the Zoological Gardens. Payer stated that in 1839 M. Serres reported an outbreak of Typhoid Fever among the monkeys in the menagerie attached to the Museum of Natural History, Paris. The symptoms were diarrhœa, increased frequency of the pulse, and fever, ending almost always in death. In January of the present year there arrived at the Zoological Gardens six Canadian beavers apparently in the best of health. In the course of four or five weeks after their arrival four out of the six animals died, and the remaining two were sent away and recovered. The younger ones were the first to succumb, but in all ulcerated Peyer's patches were found, both in the agminate and solitary forms; the ulcers were typical of the disease. In the young specimens the various stages could be seen from the normal Peyerian patches through the infiltration and sloughing stages, with the bile-stained débris still hanging to some of them. Small whitish specks could be seen in the liver of two beavers; these were due to disintegration of minute areas of the hepatic tissue. Despite the negative results of inoculation, Mr. Sutton thought his cases proved that Typhoid Fever could occur in monkeys.

ACADEMY OF MEDICINE IN IRELAND.

AT the meeting held on February 13th, Mr. ABRAHAM read a paper on

Self-Mutilation of a Lioness

twelve years old, in the Dublin Zoological Gardens. The animal was discovered one morning to have eaten off six inches of her tail. After a short time she took off another large piece, and, finally, in another meal, demolished the remainder. After another interval she began to eat the dorsum of one of her paws. It was thought advisable to destroy her—various means, change of diet, aperients, local applications, etc., having failed in stopping the perverted appetite. She had till then been quite healthy, in good condition, and nothing amiss with the fur or excretions, but for one year previously she had not been in season, although formerly her catamenial periods were regular, and she had given birth to four litters of cubs. At the *post-mortem* examination all the internal organs were found healthy, with the exception of some ovarian degeneration. A number of similar cases were cited, and the distinction pointed out between those in which an animal suddenly begins to bite off and swallow large portions of its person and the more common cases, as in monkeys, etc., in which a gradual nibbling away of the tail takes place, often in consequence of some external irritation, or the itching of a healing wound.

The PRESIDENT suggested that the affection was analogous to the tendency in human beings to bite their nails, which sometimes occasioned the destruction of the ultimate phalanges of the fingers. The nail-biting began generally before hysteria manifested itself. Possibly, the lioness sought to relieve itself from irritation, and there might be an anæsthetic condition of the tail and foot which enabled it to do so without much pain.

Mr. COLLINS remembered seeing a lion or lioness similarly affected. In 1871, a horse was under his observation which, though quiet during the day, kicked furiously at night, and ultimately bit the skin off his chest. A light having been placed in the horse-box, and a man directed to watch, there was no disturbance, and he attributed the animal's action to terror. He knew of spaniels gnawing their tails when sore. Monkeys in confinement mutilated themselves, biting their tails.

Mr. WHEELER had a spaniel bitch which had had several litters of pups, and ate the last litter, then her own tail, and died of convulsions.

Dr. HENRY KENNEDY instanced a child suffering from hydrocephalus, who ate off the whole of the under lip.

The Rev. Dr. HAUGHTON said the President had made a good point in comparing the tendency described in the lioness to that of biting the nails in human beings. The nail-biting habit was, in his experience, confined to men. There was a great deal in Mr. Abraham's remarks as to the hysterical character of the affection. During the twenty-one years of his secretaryship to the Zoological Gardens, he found it necessary to drown animals that bit their tails. The tendency was connected with that in female animals of destroying their offspring. The feline carnivores ate their surplus cubs, but dogs had been known to bury them alive. The question that, when the breeding period was over, there was a liability to permanent derangement or loss of faculty, was a very serious one. He had seen cases of women who, having stopped breeding, either took to drink or became deranged. Self-mutilation was so foreign to animal instinct, that it must be due to interference with, or cessation of, some great physiological function.

Mr. KNOX DENHAM mentioned the case of a cat which devoured its four kittens, and afterwards suckled three young rats, which became domesticated, running about the house. The children played with them, but the lady of the house, becoming alarmed, had the rats destroyed.

Pericarditis in a Horse.

Mr. ABRAHAM read a paper for Dr. NIXON on Pericarditis in a horse, showing the specimen. The principal features were enormous hypertrophy, and an extraordinarily extensive fibrinous exudation covering the whole pericardial surface. The normal weight of the horse's heart was six or seven pounds, but this specimen weighed twenty-one pounds. The notes of the case were taken by Mr. J. Kenny, under whose care the horse had been for Pleuro-pneumonia, which had yielded to treatment. A week after, the animal was brought back, with high pulse and friction-sounds over the heart, subsequently becoming dull. At the *post-mortem* examination, four gallons of yellow fluid were obtained from the pericardium. The hypertrophy of the heart was of long standing, and caused chiefly by the heavy work which the animal had to perform. The Pericarditis appeared to be secondary to the Pleuro-pneumonia. The immediate cause of death was the enormous per cardiac effusion.

PROCEEDINGS OF THE SECOND GENERAL MEETING OF
THE NATIONAL VETERINARY ASSOCIATION.

(Continued from page 382, vol. xx.)

Mr. T. H. SIMCOCKS : The medical profession contains some very eminent men in its ranks, but it has others who are by no means noted for their ability. In fact, I think that I may say that the average medical man is remarkable for his entire ignorance with regard to animal diseases. I came here to be instructed, but so far as the discussion has gone I have not been assisted in arriving at any definite conclusions. Professor Walley asserts that if meat sets well it is fit to eat. Professor Williams states exactly the contrary. Dr. Fleming says that if the internal organs are any indication, certain meat he alluded to should not have been used. I should like to ask him how can the use of the flesh of an animal which has died of Pleuro-pneumonia be justified? Dr. Fleming, in his very able work, points out that this flesh is innocuous, and says that it is used in France. That is a question which, I think, you cannot argue from the state of the internal organs. I think that in some diseases it is doubtful whether we can say with certainty that meat is

fit for food or not. It would, I think, be a mistake to assert that every animal which has died of disease should be buried. The meat may not be of so high a quality as a well-finished fat beast, but the class of persons who purchase it are those with small means, and unless they bought this they could buy none at all. I think that sentiment and prejudice have too much to do with this matter. I should like to mention a case where an animal suffering from apoplexy was slaughtered. The medical officer was asked why he condemned the meat. He said that he had found in the udder signs of advanced Milk Fever. If such persons as these are to be held up as "shining lights," I think that the veterinary profession must have fallen to a very low ebb. Let us look after ourselves, and let the medical profession do the same for themselves. We should treat them as they treat us. What we want is a central authority, free from local influence, which will be guided by the dictates of reason and by a desire to promote the public health.

Mr. H. OLVER : I had no intention of addressing you upon this subject, but it appears to me that we are getting rather wide of the mark. The subject we have to discuss is that of the transmissibility of disease from man to animals and from animals to man. It seems to me that medical men are sinned against, as well as sinning. To the best of their ability, I believe, they carry out their duties, although they do not, as a rule, know when flesh is diseased and when it is healthy. As far as I am concerned, medical officers and sanitary inspectors have always consulted me. I entirely agree with what Mr. Edgar has said as to the inspection of dairies. I have annually inspected 200. I make it a rule only to ask for a good open cow-shed, properly drained. A client of mine told me that a policeman had condemned his cow-shed because there were great holes in the roof : the very thing that was wanted. The police are not the men for this duty. As to the inspection of markets and fairs, in the majority of cases it is not carried out at all. As to the subject of diseased meat, I must agree with Professor Williams, that Professor Walley has put forth a dangerous idea in what he says about the tongue. You may admit that ingestion of the flesh has no ill effect ; still it is a dangerous experiment. The line must be drawn somewhere, and I think this should be at the spot where the parts are actually diseased. I have no connection with medical men, but I think that we might help each other to a very great extent.

Mr. T. HOPKIN : There are some broad facts upon which we all agree ; one is, that certain of the diseases of the lower animals are transmissible to man. Our Government have taken certain measures to prevent this transmission. Have these been effectual ? From my experience they have not, taking into consideration this sentence in Professor McCall's Paper, "Bovine Tuberculosis may be, and is sometimes transmitted to the human subject by eating the flesh and drinking the milk of tuberculous cattle." We have hundreds of these cattle badly affected. Then comes the question of other diseases, not easily detected but transmissible to man. Do the powers that be take the proper steps as regards these ? I believe not. I believe that the microscope is called into use, but that the examination is very superficial. As these diseases cannot be detected without the use of the microscope and other aids, I want to see these brought more into use, and that by inspectors who shall appreciate fully the importance of the subject, and have—like those in Continental cities—the ability to detect these diseases and to give good advice about them. I can tell you that horseflesh is eaten by the ton within a very short distance of this room, and hundreds of animals affected with Tuberculosis are also turned into human food. It appears by Professor McCall's Paper that compensation was paid in a case of Tuberculosis. It is not so here.

Dr. FLEMING : In reply to Mr. Simcocks, I may state that the organs to

which I referred were those affected with "*Tuberculosis*" in a very advanced stage. We must deal with facts. Experimental pathology should be able to enlighten us. I do not know of a single case in which a human being has been inoculated with Pleuro-pneumonia. We know that butchers have dressed the meat for years and years, and that veterinary surgeons have performed *post-mortem* examinations—wounding the hands—but no fatal results have followed.

Mr. J. LAMBERT : I agree with Dr. Fleming that we should look at this subject from a practical point of view. Experimental pathology and experience agree pretty fairly that these diseases are due to bacteria of various forms. There are four classes of these, and one of them forms spores, which are very dangerous. The others are easily killed, and good cooking will get rid of them. Anthrax and Swine Fever both form spores. You can tell the spores, which, I may mention, are difficult to kill. Pleuro-pneumonia and diseases of that nature which are due to micrococci, are not so dangerous ; their micrococci are easily killed. I think that there can be no doubt that the outbreak alluded to, as having taken place at Dover, was Foot-and-mouth Disease.

Mr. MOIR : Unless the inspection of dairies is made compulsory, it will be useless. If carried out thoroughly, it would be a great boon. I think the diarrhoea we find in children is often produced by milk obtained from a cow too soon after parturition.

Mr. BELL : As an inspector of meat in the north, I may say that *Tuberculosis* is one of the commonest diseases amongst cattle. Looking at the subject from an agriculturist's point of view, I would ask, is he to suffer by the medical officer ordering these animals to be destroyed? I think that we should take such measures to get rid of the disease as shall cripple the breeders as little as possible. Some of our finest herds are breeding this disease. I hope that Dr. Fleming will bring this disease before the Privy Council, and ask them to include it in the Contagious Diseases (Animals) Act.

Mr. WALKER : With respect to *Tuberculosis*, I have had a great deal of experience in one of the largest parishes in England, and I believe that a large portion of food consumed there is unfit for human food. I am afraid that if we had the Act altered, very few cases would come under it, as the disease makes great strides before it can be diagnosed. I think that Mr. Taylor gives rather too much credit to the sister profession. On one occasion I received a telegram from a doctor who was acting as inspector, asking me to go and see a young heifer. I found that the lung was growing to the side and they could not get it out, and the doctor in a case of this kind had to telegraph to me. A few weeks ago I attended a case at Halifax, and went to no less than ten doctors to see if I could borrow a book which would assist me to work out an idea of my own. Neither of these medical men appeared to have any idea of the physiological change which takes place previous to parturition. Still, I think that we should hold out the hand of fellowship to that profession. I think that if we depend upon our own, our support will be a slender one.

Professor MCCALL : I shall not detain you long. You have my views on the subject before you. Professor Walley asks me to explain why I say that the flesh of an animal which has suffered from *Cysticercus cellulosus* is not fit to be given to a dog. I hold that this flesh is not fit to be given to any animal uncooked. It is quite customary to say that this is good enough for a dog. He also says that he does not think that any man would mix diseased milk with healthy. I say that no man mixes it knowing that it will contaminate the rest ; but they do it in ignorance. With regard to his further remarks, my practice is always to condemn the whole of the mucous

membrane where Foot-and-mouth Disease exists. He says that we need not condemn the head ; but I think that he is wrong, because we have contagion in the salivary glands, which are so fixed upon the head that considerable portions of the latter would be removed in taking them away. I have always removed the whole of the alimentary tract. This disease may be transmitted, even if no eruption is perceived, the disease being present in the saliva. Mr. Edgar spoke of the water from the shale pits in the case I alluded to. Previous to the opening of these shale pits, Tuberculosis was unknown on the farm ; but shortly afterwards the cattle commenced to cough. My reason for having the pipes laid down was that the animals should not drink the water. I am not prepared to say that bad water will produce the disease, but it will bring the body into that condition in which it is an easy prey to it. We know that the first symptom of Tuberculosis in the human subject is often a cough. This disease is not hereditary in the sense of being transmitted from the parent to the offspring. We are all breathing the organisms which produce it, but many of us are proof against it up to a certain point. Mr. Hopkins speaks of the compensation alluded to in the above-mentioned case. This, however, had nothing to do with the Contagious Diseases (Animals) Act.

The PRESIDENT : To leave the matter as it stands now would be to create confusion. To adopt Professor Walley's propositions will be to put the crowning point to the discussion. I will therefore call upon him to bring them forward.

Professor WALLEY : You know my opinions upon this subject. Some of my remarks have been a little misrepresented. I only spoke in a general way of the medical profession, amongst whose members I have several friends. I am perfectly willing to get assistance from that profession. With regard to what Dr. Fleming has said as to the flesh of animals which have died of Pleuro-pneumonia, I make no remarks. It is well known that this flesh has been eaten for years and years, and that no harm has resulted from it. An Australian gentleman, however, once told me of a stock-owner who had been inoculated from a beast, and in this case very serious results followed. The propositions I have to bring forward are these :—

1. *Has the time arrived when the veterinary profession should take more active steps to bring the meat question before the public and the Legislature ?*
2. *Should all private slaughter be abolished in boroughs and cities ?*
3. *Should cows and dairies be inspected periodically by veterinary surgeons, who should have the power to enforce the removal of any cow in the system of which evidence of dangerous disease exists ?*
4. *Should all public markets and marts be periodically inspected by veterinary surgeons, and any animal there exposed showing evidence of dangerous disease be removed, and its carcase afterwards inspected ?*
5. *Should the flesh of animals that have suffered from "Glanders," "Tuberculosis," "Septicæmia," or any disease likely to prove dangerous to the human subject be condemned ?*
6. *Should inspectors of meat-markets be efficiently trained ?*

These questions were all answered by the meeting unanimously in the affirmative.

Professor WALLEY then said : Is it your wish that copies of these resolutions should be forwarded by the President of this Association to the Lord President of the Privy Council and to the President of the Board of Health ?

To this question also a decided answer in the affirmative was given.

MAJOR SUBJECT II.

ECZEMA CONTAGIOSA, OR FOOT-AND-MOUTH DISEASE.

BY WILLIAM WILLIAMS, F.R.C.V.S., F.R.S.E., PRINCIPAL OF THE NEW VETERINARY COLLEGE, EDINBURGH.

AS I presume that all the members of this society are thoroughly familiar with the well-known symptoms of Foot-and-mouth Disease, I shall not waste their time nor weary their patience by a needless description of that part of the subject. There is, however, one point of the symptomatology of the disease to which I would wish to draw attention, namely, the absence in some cases of the principal diagnostic symptoms—the vesicular eruptions in the mouth and around the coronets. This peculiar feature is likely to prove misleading, and to cause errors of diagnosis, especially in fresh outbreaks of the disease.

In the last two importations from Ireland into Scotland many of the affected animals presented no other symptoms than those of lameness and elevation of temperature ; but, notwithstanding the absence of the eruption, the disease was quite as contagious as if there had been a discharge from an eruption, and from this fact I conclude that not only is the virus contained in the vesicular discharges, but is exhaled by the breath and the excretions of the diseased animals, thus doing away with the popular fallacy that the disease is not contagious before the eruption.

With regard to the etiology of Foot-and-mouth Disease, I have little to state beyond the fact that I believe it to be due to an organism of a vegetable nature, a cryptogam—either a bacillus or a micrococcus ; at the same time I am free to confess that, although I have made many investigations, I have as yet failed to discover any specific organism that I could fix upon as being the disease-inducing one. In all cases the discharges contain great numbers of rounded bodies of the nature of micrococci, and in a few instances I discovered a mycelium, differing from anything I had seen before in the animal body, but to some extent resembling the *Saprologina ferox*, or the organism found on the skin of the salmon, and causing so much mortality amongst that noble fish.

But I am not in a position to state that either the micrococci or the mycelia are the causes of the disease, as it is almost impossible to get pure cultivations of them, owing to the fact that the discharges contain great numbers of putrefactive bacteria, which generally prevent the development and growth of pathogenic organisms in cultivation-fluids.

It is, however, beyond all question that the disease is due to the invasion of an organism which has an immense power of multiplication. This characteristic is very markedly shown, for a very small quantity is generally sufficient to induce the disease in great numbers of cattle in a very short period of time. This is again proved by the so-called period of incubation being often very short. In one instance that fell under my own immediate notice, a period of twenty hours was sufficient to allow of the full development of the symptoms in six cows, after a diseased one had been in the byre for a few minutes only.

The disease having been developed, runs, in the majority of instances, a short course, and in a period of eight or ten days the animal has, if no serious damage has been done to the feet, regained its health again, and it very often happens that such an animal puts on flesh more rapidly than before the attack ; from this fact many people maintain that the disease does no serious harm, and that repressive measures are unnecessary.

But before entering upon a consideration of the legislative aspect of the question, I will now give a brief history of the disease compiled from the able

and exhaustive report of the Agricultural Department of the Privy Council by Professor Brown, for the year 1883.

Foot-and-mouth Disease first appeared in this country in August, 1839, at Stratford, near London ; was in Smithfield in September, and from various centres was conveyed both to Scotland and Ireland.

As no animals were landed from abroad at this time, the introduction of the disease is involved in mystery ; but as it prevailed in France and the Netherlands, it was doubtless brought from one of these countries in some unaccountable manner. Be this as it may, the disease became very virulent in 1840 and 1841, more particularly among sheep and pigs, and it was not an uncommon thing for large numbers to lose their hoofs whilst standing in the market ; and it is recorded that basketsful of hoofs of pigs and sheep were swept up after Smithfield market.

In 1842 the disease declined, and until 1845 but little was heard of it. There was then a sudden outbreak. Then another in 1849, which continued until 1852, after which there was a long period of quiescence. The fourth outbreak occurred in 1861, some Breton cattle at the Royal Agricultural Show which was held at Battersea being among the first attacked. Then in 1865 there was another outbreak along with the Cattle Plague, and it is worthy of notice that the measures adopted for the suppression of the Cattle Plague in 1866 checked the progress of Foot-and-mouth Disease ; and during 1867 and 1868 very few centres existed ; but Professor Brown states that it is not correct to say that the malady was entirely stamped out by the Cattle Plague restrictions.

In 1869 a very serious outbreak occurred, and which continued until 1872. During September, 1871, as many as 4,000 outbreaks were reported weekly, the number of animals attacked being as high as 40,000 per week. During 1873 the disease remained dormant, but in 1874 it rapidly extended over the whole country. The year 1876 witnessed another outbreak, and which, from its rapid rate of spreading, threatened to be a severe one. The appearance of Cattle Plague in the London dairies, however, led to the immediate adoption of special measures for its extirpation. Local authorities, far removed from the centres of infection, made regulations against the movement of animals and the holding of fairs and markets, so that in their anxiety to prevent Cattle Plague, they checked the progress of Foot-and-mouth Disease, although, before the Cattle Plague restrictions could be brought into operation, Foot-and-mouth Disease had extended over considerable portions of England, Wales, and Scotland.

At the end of 1878 only two centres were known to exist in Great Britain, but early in 1879 the disease began to extend again, and for the first time in this country it was met with severe restrictive measures, which under the Act of 1878 were directed against it. Professor Brown naively remarks: "Perhaps, owing in some degree to the novelty of the provisions, local authorities acted with a certain amount of vigour. Their efforts were from time to time supplemented, when necessary, by the action of the Privy Council, and *the disease was stopped before it had obtained any grasp of the stock of the country.*" (The italics are my own.)

For the first nine months of 1880 this country appeared to be actually free from Foot-and-mouth Disease, and at the end of September no centre of the disease was known to exist in this kingdom outside a foreign animals' wharf ; but in October the disease was again detected in a dairy in London, and by the end of the year it was extensively spread over England.

From his knowledge of the history of Foot-and-mouth Disease, Professor Brown concludes that the various outbreaks referred to above cannot be accounted for by the introduction of diseased animals at irregular intervals from abroad. He says :—"Our experience of Foot-and-mouth Disease in

this kingdom for the last forty years has necessarily made us perfectly familiar with the characteristics of the disorder, its effects on the animals' organism, and the circumstances which favour or oppose its extension. Among other things we have learned to expect periodical accessions of the disease, to be followed by its subsidence. Each outbreak or period of excessive prevalence has had an average duration of something over two years, and the period of quiescence has usually continued for about a year and a half. Thus every outbreak has been disconnected from the succeeding one by an interval of rest, during which the affection has remained in a dormant state, never ceasing entirely, but attracting little attention. It has become customary of late years to refer the periodical accessions of Foot-and-mouth Disease to the re-introduction of the infection from abroad, but a moderate reflection will suffice to convince the impartial critic that the periodicity of the disease cannot be accounted for by the introduction of diseased foreign animals at irregular intervals. A more reasonable explanation may be found in the fact that when Foot-and-mouth Disease is allowed to run its course it attacks all the susceptible subjects within its range, and then, having exhausted its virulence, remains in a quiescent state until it finds a new generation of animals to attack."

During the parliamentary discussion upon the Cattle Bill of 1884, several honourable members of the House, probably inspired by the above novel and startling conclusions of Professor Brown, did all they could to defeat the measure; some, upon the ground that the disease was indigenous to this country, whilst others went far beyond this, boldly asserting that the disease was not only indigenous, but a very benign and harmless affair; that there should be no legislative interference at all, and that it should be allowed to run its course, and thus exhaust its strength until a fresh crop of animals were ready for its attacks.

In answer to the assertion that the disease is generally benign, one is bound to admit that it seldom proves fatal to cattle, and but rarely leaves any very grave alteration of structure or permanent damage to the animal's health. But it deteriorates the value of all stock for a time, and it has been considered that amongst half-fat animals, an ordinary attack of the malady causes a loss of from £2 to £4 per head. Now this of itself, when applied to the many thousands attacked, amounts to an enormous loss; this, however, can be overcome as the animals live. The great source of *permanent* loss, both to the cattle breeder and sheep farmer, is an outbreak amongst calving cows and lambing ewes, as many calves and the majority of young lambs are carried off.

Seeing, then, that the disease frequently causes great loss, and a loss that cannot be modified by any medical treatment, I think that the members of the profession generally should hail with satisfaction the passing of the Cattle Bill of 1884, for, notwithstanding the strong assertion of Professor Brown, I believe the majority of the profession still consider that the various outbreaks have resulted from the importation of fresh virus.

With regard to the conclusion that the disease was now naturalised in this country, one honourable member (Sir Lyon Playfair) compared Foot-and-mouth disease to Diphtheria. He said, to this effect, that Diphtheria, then called Boulogne sorethroat, was at one time unknown in this country, but being imported, soon became naturalised, and now we had outbreaks of it without importation; in fact, that the poison of Diphtheria was here as a permanency, and that we had no need of any fresh importations, and that in the same way the virus of Foot-and-mouth Disease was now indigenous, giving rise now and then to outbreaks, and that legislative measures, such as the Bill of 1884, were unnecessary, and by limiting the importation of cattle, would enhance the price of meat.

If the honourable gentleman had given the slightest consideration to the difference between outbreaks of the two diseases, I feel quite sure he never would have given expression to such an argument.

Letters appeared in various daily papers, and as some of them emanated from a well-known and highly-esteemed pathologist, Dr. Creighton, they are deserving of some consideration. Dr. Creighton says (*Standard*, May 1st, 1884), "The disease is troublesome with us because we are necessarily a great importing country, but it has been shown over and over again that the eruption of eczema on the feet and on the mouth occurs more often at the end of a journey than at the time of leaving the 'infected' soil. If it had been always due to contagion from a previous case, it would have shown itself in two, three, or four days after the latest possible date of exposure." Then he endeavours to prove that this is not always the case, and cites an instance of a pedigree animal which developed the disease after arrival in Sydney from this country.

In common with Dr. Creighton I hold the opinion that some ordinary maladies, under certain conditions, acquire contagious properties, but my experience of Foot-and-mouth Disease compels me to conclude that it has never as yet originated, *de novo*, in this country, that it is introduced from abroad, that the aim of all legislative measures must, in the first place, be directed to the prevention of its importation, and I challenge Dr. Creighton to produce one instance of the introduction of the disease into this or any other country from a non-infected one.

I do not maintain that the Bill of 1884 will effectually prevent the introduction of Foot-and-mouth Disease, for it is incontestably proved that the virus may be introduced by persons, clothing, or by anything which has been in contact with diseased animals. I may here relate a circumstance which bears upon this point, and is also explanatory of the supposed non-infective origin of certain outbreaks. A farmer bought a number of sheep in an adjoining county about the end of the clipping season. They were unclipped, and were not long in his possession before they showed signs of Foot-and-mouth Disease. He decided to have them immediately clipped, and put on the pastures in which he wished them to remain, before reporting the outbreak. A neighbouring shepherd assisted at the clipping. This was the last outbreak of the disease in that county that year. The following year, soon after clipping his first fat hogs, that neighbouring shepherd had Foot-and-mouth Disease in his flocks, and this was the first outbreak in that county that year, and was, for some time, quite a mystery to all except the believers in its spontaneous origin. But after a time the "neighbouring shepherd" remembered that, when clipping the affected sheep the previous year, he had worn a pair of linen overalls, which were then immediately rolled together and laid aside—on the top of an old-fashioned box bed—until put on to clip his own sheep. Now, nearly twelve months had elapsed, but the virus retained all its activity.

Many more cases of a similar nature could be recorded, but none more decisive than this one, as in many some connecting link is wanted to complete the chain of evidence.

The conclusion of Professor Brown that the periodicity of the disease cannot be accounted for by the introduction of diseased foreign animals, would have been unanswerable if, during the years referred to, no diseased animals had been imported into this country. But this was not the case, as we find that on September 20th, 1880, twenty diseased cattle from France were landed at the Port of London, and that on October 1st the disease was found in the London dairy. During the remainder of that year, and in 1881, '82, and '83, over 7,099 diseased animals, cattle, sheep, and swine, were landed at our various ports, namely, London, Hull, Hartlepool, Grimsby, Southampton, Portsmouth, Sunderland, and Liverpool.

Now, if Foot-and-mouth Disease were like Pleuro-pneumonia, we could understand that slaughter at the port of debarkation would prevent its spread over the country ; but when we bear in mind that the virus, introduced into a port is disseminated in so many various ways, by men, dogs, birds, etc., and that a butcher employed to kill the diseased animals, by associating with others connected with cattle may be the indirect means of conveying the contagium, we can easily understand that the landing of diseased cattle, even upon a wharf and for immediate slaughter, becomes a source of great danger.

The Bill of 1884 gives power to the Privy Council to prevent the above source of danger. As now, the Privy Council must not only be satisfied with the existence of suppressive laws in a country from whence cattle are exported, but that such laws are properly administered. In fact, according to the Bill, a country is regarded as dangerous until it is proved to be safe, and that when any doubt exists, animals must be prevented from landing in this country.

The other assertion contained in the report : " That when Foot-and-mouth Disease is allowed to run its course it attacks all susceptible subjects within its range, and then having exhausted its virulence remains in a quiescent state until it finds a new generation of animals to attack," is disposed of by the fact that Foot-and-mouth Disease, unlike several other specific maladies, does not give an immunity against a second or even third attack. It therefore cannot be said that " the virus remains quiescent until it finds a new generation of animals to attack."

Having endeavoured to answer theories and conclusions which I consider erroneous and calculated to retard proper measures being taken to suppress the disease, it becomes my duty to give my views upon what may be the best measures for the prevention of its future spread.

A reference to the context of this paper will enable the reader to convince himself that when restrictive measures were properly put in force during the Cattle Plague periods in 1866, and 1876, and in 1878 the stricter carrying out of the then novel regulations of the Contagious Diseases (Animals) Act, the disease was almost, if not entirely, stamped out.

After the novelty of the Act of 1878 had passed off, local authorities in various parts of the country became very indifferent, many of them failing to realise their responsibility, whilst others declined to put the instructions in full force, on the ground that the Act was a great hardship upon the British farmer, who also complained that he was prevented from doing what he would often wish to do, by early reporting outbreaks of disease amongst his stock, by the Government taking no measures to exclude the landing of diseased foreign animals. The Bill of 1884 has removed this cause of complaint, and it only now remains for local authorities honestly to carry out the provisions of the Act of 1878.

That the provisions of this Act of 1878 are quite sufficient to stamp out the disease has been amply proved by the success which has been achieved in Scotland, Westmoreland, Northumberland, and some other counties.

Professor Brown says : " It is in some degree satisfactory to be able to modify the remarks which have been made with regard to the inefficacy of the measures which have been generally employed, by referring to particular local authorities who have succeeded in limiting the spreading of the disease by the vigorous administration of the law as it now exists. First in the list stands Scotland, a part of the kingdom which has presented the singular spectacle of a number of local authorities of counties and burghs acting in concert and with one common object. On two occasions in 1882 Foot-and-mouth Disease was introduced, and by the prompt action of the authorities was confined to the premises where it was detected. In 1883 repeated intro-

ductions of disease from Ireland were followed by considerable extension in the spring of the year. It was nevertheless soon reduced to insignificant proportions." ("Agricultural Report" by Professor Brown.)

I am of opinion that instead of local authorities there should be a central body, or, perhaps, three central ones to carry out the law, but as this arrangement is out of the question, it needs no further reference.

Confining myself to Scotland, where I have had ample opportunities of witnessing the successful stamping out of the disease, I may state that the Scotch local authorities for the counties are composed of landed proprietors and tenant farmers, and that these gentlemen are supposed to know something about cattle and their diseases. Anyhow, I always found them ready to pay due deference to the suggestions of their veterinary inspector, and that they do not place the police officer in front of the professional man, as, I am sorry to say, they do in some English counties.

The means taken in Scotland to limit the outbreak and prevent the spread of Foot-and-mouth Disease :—

When the disease was first discovered, the veterinary inspector, assisted by the police, applied the regulations, and at once declared the place infected. No time was lost by having in the first place to report to magistrates or local authorities and obtaining their sanction to declare the place infected, the declaration of the veterinary inspector being quite sufficient for the purpose of the law, and, if correct, was confirmed by the local authority at its first meeting; and, during the prevalence of the disease, meetings were held weekly.

If the opinion of the veterinary inspector were wrong—a thing, however, which never happened—the restrictions and declarations were (or would have been) withdrawn.

In addition to confirming the action of the veterinary inspector, the local authority declared an infected district, into or out of which no animal (cow, sheep, or pig) could be removed, except by licence for slaughter, and in such a manner or along a road as described in the licence, such licence to be in force for twelve hours only.

In addition to these regulations the byres, etc., were ordered to be thoroughly cleansed, whitewashed, and disinfected; but this was found to have no effect in arresting the disease in a particular byre; so it became customary to let the disease exhaust itself before the cleansing and disinfecting were enforced.

In Cumberland and Westmoreland several outbreaks of the disease have been very successfully dealt with; but in these counties large staffs of police were told off to perform special duties to prevent the spread of the disease, and slaughter of the whole flock or herd was often resorted to. In Scotland the suppression of the disease was effected without any very extraordinary police supervision, the policeman of the district calling in daily at the affected places and seeing that no animals had been added to or removed from such places, and in no instance but one was the slaughter of a herd deemed necessary.

Declaration of infected counties and prohibition of the movement of animals from a declared county.—This I consider a great hardship upon owners of cattle, dealers, and others interested in stock, and should be modified.

For example, take any large county in England or Scotland, if disease break out in one corner of the county the whole of it is at once placed under prohibition by other counties, and no animals received, although they may be ten or twenty miles from the infected place; in fact, the whole trade of the county is interfered with, because disease may be only in one byre in that county.

In substitution for this harsh and, in my opinion, damaging regulation, I

should like to see power granted to the local authority nearest the place of outbreak, to declare an infected area or circle, say extending half-a-mile, or even a mile, if deemed expedient, all around an infected place, this circle to embrace portions of one, two, or more adjacent counties if included within its limits, out of which no cattle, except for slaughter at the nearest slaughter-house, could be removed ; but beyond the limit of this area there should be no restrictions. Indeed, as stated by Professor Brown, the Act of 1878 "contemplates the concentration of sanitary measures in the centres where the disease exists . . . that the restrictions on the sales and movements of animals which excite so much opposition are rendered necessary only when the lax administration of the law permits the escape of the disease from the centres to which it should be confined. No argument is needed to prove that so long as infection is imprisoned in a defined area of limited extent, the movement of animals outside that area may be carried on without danger ; but this freedom of movement can only be maintained in connection with a perfect system of sanitary regulations, including the isolation of all diseased and infected or even suspected animals, disinfection of all the products of disease, and the use of stringent measures to prevent the communication of infection by the agency of persons or substances which have been in contact with diseased animals or their excretions."

Slaughter of Diseased Animals, except in very exceptional cases, I consider unnecessary, but the subject is well worthy of discussion, and I shall be very glad to hear the opinions of the members of the Association. I am, however, of opinion that the expense should be paid out of the Imperial exchequer.

Disinfection.—So far as my experience goes, disinfection, as a means of preventing the spread of the disease in a particular herd or flock, may be looked upon as a failure, neither sulphurous acid, chlorine, nor the preparations of carbolic acid having any effect, although all of these, as well as chloro-naphtholeum, have been considered to have the power of destroying the contagium. But upon this point I would like to hear the opinion of the members. Of one thing I feel certain, that whitewashing railway trucks, cattle lairs, etc., with slaked lime is a mere delusion, slaked lime having no disinfecting properties, and merely forming a cover for the virus, which may be removed at some distant period, and by giving exit to the contagium cause mischief in the future. It is, however, important that everything which may have been in contact with diseased animals, including manures, fodder, the clothes of attendants, as well as ships, cattle trucks, byres, should be subjected to the influence of some reliable disinfectant.

With regard to inoculation, I am of opinion that it should not be resorted to, and upon the ground that even if successful in propagating the disease in a milder form, it would do harm by multiplying the contagium, and be uncertain in its effects in preventing a second attack.

As to the medical and surgical treatment of the disease, I have but few observations to make. I may, however, state that I do not believe in any specific, as no remedy has yet been discovered which has the power of destroying the contagium. But while I disapprove of specifics, I am strongly of opinion that many animals are compelled to suffer much more than necessary by neglect of professional supervision, and it is sometimes lamentable to see a lot of cattle totally uncared for, medically or hygienically—in fact, just left to their fate, and exposed to the inclemency of the weather. I have seen many so lame as to be unable to stand, left to die from starvation, so callous and careless are some owners of stock.

In conclusion, I beg to draw the attention of the members to the 56th section of the Contagious Diseases (Animals) Act, 1878, which is as follows : "No stamp duty shall be payable on, and no fee or other charge shall be

demanding or made for any appointment, certificate, declaration, license, or thing under this Act, or an Order of Council, or a regulation of a local authority, *or for any inspection or other act precedent to the granting, making, or doing of a certificate, declaration, license, or other thing.*" (The italics are my own.)

Mr. T. H. SIMCOCKS, in opening the discussion, said : I regret that this duty was not entrusted to an English practitioner. My observations on the subject must be taken as applying to the administration of the law in Ireland, although they will doubtless also partly apply to England. There appears, to my mind, to be three questions in connection with this matter. Firstly, has the disease now become acclimatized, and can it originate spontaneously? Can it be stamped out by repressive measures? And, if so, does the result obtained by these repressive measures compensate for the loss entailed in carrying them out? Some very eminent authorities have expressed the opinion that the disease can originate without infection or contagion. I do not set myself up as an authority, but I entirely dissent from this opinion, and my view is strongly borne out by the fact that from 1876 to 1880 we had not a single case of the disease in Ireland, but when it was once introduced, it spread over the country like wildfire. The success of the stringent measures which have been carried out in Ireland is a proof of their utility. Are the repressive measures justified? On this point I will quote a few statistics. In Ireland, from 1869 to 1876 we had about a million animals affected. The loss amounted to about £2 per head, showing a total loss of about £2,000,000. Last year, when the Act of 1878 was in force, we had only about 114,000 cases; and instead of losing £2,000,000, in six or seven years we got rid of the disease for about £230,000. As to the suspension of fairs and closing of markets, I have heard it said that it would be better to allow the disease to take its course, and to put up with the loss. As to the loss, I doubt whether it is so great as some people say. People are very apt to exaggerate, and are slow to tell you what they gain by these measures. With reference to the administration of the Contagious Diseases (Animals) Act by the local authorities, my experience is that, as a rule, they are most unwilling to carry it out. A great many throw every possible obstacle in the way. They break the law themselves, and minimize the good to be gained by the Act. I am strongly of opinion that the local authorities should be abolished and a central body appointed for each of the three kingdoms. At present the disease is liable to be spread about all over the country. I have known an outbreak occur in an infected area, through which animals were not allowed, without great precautions, to pass. I recollect that when Professor McCall was in Ireland, he acted very efficiently. Cordons were established, and most elaborate precautions taken. The first day the restrictions came in force, some cattle spread the disease to Scotland. I must say that I thoroughly agree with the system in force in Scotland. Professor Williams alludes to a case in which the virus of the disease remained in a man's clothes for twelve months. I have known an instance occur on an island, where no cattle had been taken from it or brought to it for months. With a view to preventing the spread of the disease, I would suggest : (1) That all local authorities should be abolished, and a central body appointed in each of the three kingdoms to carry out the law. (2) That as comparatively few animals are now affected, they should be at once slaughtered and the owners receive their full value. (3) That thorough and effective disinfection of all premises, utensils, mangers, gates, etc., near which Foot-and-mouth Disease has existed within six months, should be carried out. (4) That every cattle truck used for the conveyance of animals should be disinfected. (5) That if any outbreaks of Foot-and-mouth Disease occur within the following month, the affected beasts and those which have

been in contact with them should be immediately slaughtered, and the premises in which they were, and the attendants, thoroughly disinfected. If, in spite of these measures, fresh outbreaks continued to occur, I would, from the 1st September to 1st December, close all fairs and markets, and entirely prohibit the movement of store stock. Fat stock, intended for slaughter within seven days, should be moved under licence, to be granted by a proper official. Professor Williams quotes Professor Brown's words, in which he says, "A more reasonable explanation may be found in the fact that when Foot-and-mouth Disease is allowed to run its course, it attacks all the susceptible objects within its range; and then, having exhausted its virulence, remains in a quiescent state, until it finds a new generation of animals to attack." There is no doubt that this is fact to a great extent. I have seen some thousands of cases within the last twelve months and not fifty were attacked a second time. This Act is administered for the benefit of the whole country, and the expenses should be paid out of imperial funds. I will not further detain you, except to thank you for the patient hearing you have given me.

Mr. MOIR: In the district I represent, the cattle-trucks are very inefficiently cleansed, so that the germs of Foot-and-mouth Disease are covered up by the coats of whitewash, until these coats become so thick, that they fall off, leaving the germs exposed. We have the disease breaking out in cattle conveyed from America, after a sixteen days' passage; where is this contracted? I believe that it is obtained from the cattle-trucks. I have called the attention of the authorities to this matter. With regard to restrictions, I believe that the powers given to the local authorities are a great deal too vague. I think that if a five-mile area were taken, it would be quite sufficient. If the disease breaks out in the east end of a county, why should the west end be prohibited from moving its stock?

Mr. OLVER: I am very much interested in this disease, and have endeavoured to obtain improvements in the mode of dealing with it. In my opinion, it is simply ridiculous to attempt to cleanse trucks after the dung has got dry. It requires to be carried out as soon as the trucks are empty. As long as we have cattle-trucks with large boarded sides, they will never be cleansed at all. In the town in which I reside, large numbers of trucks go through every day; and are sent back as they arrive; and are cleansed when they get back; but not before. As a matter of fact, the majority of cases of Foot-and-mouth Disease have broken out near a railway. The orders should come from a central authority. So many divisions are a very great hardship. I have known cases in which the licence has had to be four times countersigned, to take animals four miles. My house stands on the very borders of the county, and if I am prohibited by one county, I have only to move the animals across that border, and I can send them where I like. Professor Williams thinks that disinfection is of little value. I do not agree with him. Within the last few years, I have had many cases in which I have advised the use of disinfectants in the premises and over the animals, and the disease has not spread. I believe that licences are unnecessary. If I, as an owner of cattle, make a declaration that these cattle are free from disease, and that they have not been in contact with others for fourteen days, it should answer the same purpose as a licence. Let the declaration accompany the animals, and this ought to be quite sufficient. Mr. Simcocks asks whether repressive measures are necessary, and whether they compensate for the loss caused in carrying them out. I think that if they were strictly enforced they would do far more than compensate for the loss. As I do not think that the disease is indigenous to this country, I believe that, as a rule, animals do not take the disease a second time within a short period, although I have known instances to the contrary.

Mr. LEPPER : I am certain that Foot-and-mouth Disease does not arise spontaneously, and that it is not indigenous to our country. In the time of the Cattle Plague—when severe restrictions were in force—we had little of this disease. I have known an instance where the disease occurred twice in six weeks. The loss entailed on stock by this complaint is more than we can calculate. As to farmers and others objecting to the regulations, I maintain that they would not do so if no fresh cases were brought in from abroad. The dealers are the means of spreading the disease more than any class ; and it is sometimes to their advantage to do so. I believe that the Act passed this session will, if properly carried out, do an infinite amount of good.

Dr. FLEMING : The discussion of this disease is most important from a professional and a legislative point of view. There are certain points upon which the veterinary profession ought to express itself very strongly, and perhaps the most important is the answer to the question : is the malady indigenous to this country ? The disease is not a native of Great Britain. It was introduced here in the year 1839. From 1834 to 1838, it commenced to spread in the east of Europe, and extended towards the west. In the latter year, it had invaded Belgium, so its appearance in this country in 1839 need cause no surprise. We must remember, that the serious outbreak of Cattle Plague in 1745 was due to the introduction of two calves from Holland. That the disease occurs solely on account of its contagious qualities, we cannot for a moment doubt. It cannot be generated spontaneously. I really think we have some reason to complain that, after the active efforts which have been made to extinguish this malady in this country, the medical profession should try to make out that it can be generated here. Only a short time ago, a medical man, who stands very high as a pathologist, wrote that it could be generated spontaneously, and that all the repressive measures which we were introducing were useless. He said that our profession was misleading the public. If Dr. Creighton had known anything about Foot-and-mouth Disease, he would have known that we were right, and that the stubborn facts which were realised by the public were against him. The evidence which has been before you will show that this country has been free from the disease, and it can be so again. Legislation has had more of a political character, than one to serve the public welfare. This is not, and ought not to be made, a political question at all, and any one who endeavours to make political capital out of it deserves the reprobation of the entire community. Repressive measures should be most rigidly carried out. As foreigners will be glad to have their stock admitted, if they can, to get them off their hands, we should protect ourselves at our ports. *There must be one central authority.* It should not be left to the discretion of local authorities. I think that the vitality of the germs is greater than is usually believed, and every care should be taken that these are destroyed. I believe that a great deal of the disease is due to the inefficient manner in which cattle-trucks are disinfected. The best means to employ in disinfecting is steam, which should be heated to a very high temperature. Above all things, let us guard against the reimportation of disease-germs into this country, when once it is free from the malady.

Mr. EDGAR : I should like to allude to one outbreak which came under my notice, and which would seem to show that disinfectants are of no special value. It took place in a large dairy, where the sanitary conditions were everything that could be desired ; where the cows had received two drachms of carbolic acid, and the drains were charged with disinfectants, yet every animal became infected.

Mr. STANLEY : As to separating the animals, I had last year a case of an outbreak amongst about 100 cattle, and it took five months before the inspector would set us free. As it occurred again this spring amongst the milk-

ing stock, I took the precaution to have every animal removed when it got a little off its feed ; the result being that we were declared free within a month. I think that if you remove quickly enough, and properly disinfect, you will stop the spread of the disease.

Professor WALLEY : Acting upon the maxim that every man should add his *quota*, I will make a few remarks. On page 42 of Professor Williams' Paper, he says, "In answer to the assertion that the disease is generally benign, one is bound to admit that it seldom proves fatal to cattle, and but rarely leaves any very grave alteration of structure, or permanent damage to the animal's health." If these remarks are meant to apply to cases in which proper treatment is resorted to, I quite agree with them. But every one must acknowledge that the disease not only often proves fatal, but leaves behind it permanent injury. I have seen animals die in tolerably large numbers, because they have not been properly treated. As to young lambs, there can be no doubt that if they are allowed to suck their mothers when the disease first appears, they will die by thousands. During the outbreak in Berwickshire, Mr. List, the Superintendent of Police, told the farmers to take off the lambs from the ewes for the first twenty-four hours, and this proved a most successful step. Professor Williams says again that the loss cannot be modified by medical treatment. I hold that it can, to a very great extent, if the treatment is properly carried out ; and if it is left alone, a very heavy loss will probably be the result. With regard to what Dr. Creighton stated in the *Standard* of 1st May, 1884, I am astonished that a man in his position should have arrived at such an opinion. I quite agree as to the non-spontaneity of this disease. It is an exotic disease, as far as we are concerned. With reference to what Professor Williams says on page 44 as to slaughter at the port of debarkation not being a preventative, I would remark that it is not a preventative in every case, but some years ago when an outbreak occurred in a cargo of German sheep landed at Leith, I had them all slaughtered, and the disease did not spread. In the outbreak of Cattle Plague in 1872, this policy of slaughtering was successful. I must add my testimony to that of Professor Williams as to the readiness with which the local authorities in Scotland have taken their veterinary inspectors' advice, and if all local authorities acted in the same way, the disease would soon be stamped out. As to the establishment of cordons round infected areas, I think that the Act gives the power to local authorities to act as they choose. In the country, in Scotland, a cordon of five miles is thought to be enough. As to disinfection, I maintain that immediately disease makes its appearance, every known method should be brought into operation. It was my lot some twelve months ago to be associated with Mr. Lown. I had the management near Blackburn. We were particularly anxious to prevent the spread of the disease to the best animals, and we accomplished our object by the use of disinfectants. I could cite other cases where the same method has been successful. It is the duty of every veterinary surgeon to understand the proper modes of disinfection. With regard to the disinfection of trucks, if lime were put on hot it would be effective ; as it is applied now it is useless. In Edinburgh, immediately the cattle are taken from the trucks, a strong stream of water is turned on with a hose. Every particle of manure is washed from them. If steam could be utilised it would be the best agent, but I am afraid that it cannot be brought into use for this purpose.

Professor MCCALL : I congratulate Professor Williams upon his paper, with which, on the whole, I agree. A great deal has been said about the introduction of this disease. I have been inspector in Glasgow for a long time. On one occasion upon the landing of a number of pigs, we found that Typhoid Fever was amongst them. I had the whole slaughtered, and the disease did not spread. Some time ago, a cargo of animals landed with Foot-

and-mouth Disease. I closed the gate and ordered the butchers to slaughter the animals immediately ; and I made the men themselves be thoroughly disinfected before they went out, and the result was that the disease was not introduced. Some time after, in a similar case in Glasgow, I used the same methods, and with an equally favourable result. I make the men disinfect themselves all over ; this is the only effectual way.

Mr. FLETCHER : I think that the practice of publishing the names of people who have their cattle affected is an injurious one, and in many cases prevents those who have cattle affected from reporting the fact. I have moved amongst large farmers in Lincolnshire and Nottinghamshire for some years, and have heard them speak against the restrictions in force more than against the disease itself.

Mr. SMART : I think that the fear of the importation of this disease is exaggerated. I have seen thousands of cases, and during the time I have been sub-inspector I never knew an outbreak to spread. In all these cases, they were under first-class management ; all the usual appliances for disinfection were at hand. Occasionally, people who have no business amongst the animals get to see them before the veterinary inspector, and then go away and spread the disease. This has been pointed out to the Privy Council, but with no result.

Mr. PETER TAYLOR : How long is the incubative period of the disease ? We should know how long we ought to isolate. I think also that we ought to know in what particular stage of the disease the milk is injurious to the human species, and whether boiling destroys all hurtful effects. It is also necessary to know which is the best disinfectant. I have a great affection for the medical profession, and consider that I owe a great deal of my knowledge to their kindness. A great agent at the present time for disinfectants is bi-chloride of mercury and sulphate of copper. I should like to know whether public practitioners have tried them.

Captain RUSSELL : This last autumn we had a severe outbreak in Lincolnshire of Foot-and-mouth Disease. Some of my children suffered from the disease. One child had ropes of saliva, six or seven inches long, hanging from its mouth, and several animals suffered in the same way. I cannot say that my children took it from the milk ; I think it was from going about from place to place with me. I know a family who were taken with similar symptoms. I have seen two cases of this disease in the horse, in one autumn, in which blisters on the tongue and lips were present.

Mr. WIGGINS : I do not believe, after twenty years' inspectorship, that Foot-and-mouth Disease is a native of this country. I believe that if we could trace the outbreaks we should find the origin in each case. But there are so many sources of distribution that it is impossible to do so. In driving beasts across a field where there are diseased animals, you cannot help getting them mixed. Then, again, watercourses spread the disease. Affected beasts loiter in them, and the saliva taints the surface. Then again, flies are a potent agent of dissemination. The beasts are so hampered with the disease that they cannot avoid this pest. The proboscis of these flies may be poisoned. Although they may have come from a distance of even two miles, they will have power to inoculate a healthy beast. Jay's Fluid is a thorough deterrent to the attacks of flies. I herd the beasts in a pen, and thoroughly saturate their hides, and no fly will come near them. As to railway trucks, they are brought back from their destination uncleansed. They are jostled along the line, and sow the seeds of contagion all the way. Other agents of distribution are the shepherd and his dog and the mushrooms gathered. We have had five outbreaks in Leicestershire this summer. As soon as one occurs, the inspector has a quantity of gas-lime laid inside the gate. A police cordon is set up. In one case a highway ran close to the

field. A policeman was stationed half a mile from the field on one side, and another at an equal distance on the other. No one was allowed along the road. No shepherd or dog went into that field, and as a result the disease did not spread. If the police went into the field they thoroughly disinfected their boots. I believe that if we could get rid of the disease it would be easy to prevent its importation. I have known many cases of human beings suffering from this disease, in which case they had acute aching of the joints, and sharp, shooting pains in the lips, tongue, and loins, and, when the disease was apparent, in the feet and between the fingers. These cases passed through the usual course, and the patients got better. I have had three cases, well marked, in horses. In two of these it occurred in foals which were sucking their mothers. There is no doubt that if you boil the milk you remove all danger.

Professor WILLIAMS : In order to insure that my paper should be read, I made it a short one, and was, accordingly, sorry to hear one gentleman say that he had not had time to read it. It appears that, as a rule, you agree with what I have said. This makes it rather difficult for me to reply. I am glad that there is such an unanimity as to the non-spontaneity of this disease in this country, because if it were otherwise all the legislative measures and Orders in Council would be so much waste paper. I think that the abolition of local authorities is out of the question. Gentlemen of position in counties and boroughs will always wish to maintain their influence. My experience tells me that one attack does not give immunity from another. I have seen an animal have as many as four in one season. Various ideas have been promulgated on the question of disinfection, and one gentleman was so eloquent upon the subject of Jay's Fluid that one might think he was an agent for its sale. I must confess that it is a most useful article. But the destruction of the germs of this disease is a most difficult matter. It is easy to destroy the bacilli, but the germs are almost indestructible. You must catch them at the point of hatching, and destroy them before they have had time to arrive at maturity. It takes four days to destroy the germs, before you can prepare a cultivating fluid. For this purpose you must boil it two hours a day for four days. It is all very well to say that you can destroy them with sulphuric acid. If you realise the difficulties which the man in the laboratory meets with, you will better comprehend the obstacles which beset the ordinary practitioner. I do not intend to say that I condemn disinfection, but I leave it an open question, and wished to hear opinions as to what is thought to be the best disinfectant, which, I think, is bichloride of mercury. I have become sceptical as to many specifics. As to slaughter of the animals, I think that it is a very drastic measure. Where necessary to be carried out, the expense should be borne by the Imperial Exchequer ; but slaughter far and wide would be ruinous to the country. With regard to Professor Walley's remarks as to taking young animals from their dams for a short time, I have seen calves, that have never had any milk from their mother, die when the disease has broken out upon a farm. I did not for a moment intend you to understand that when this disease breaks out treatment should not be resorted to. Many animals suffer from neglect of professional supervision, and it is sad to see a lot of cattle uncared for. I am surprised that the last paragraph in my paper has not been alluded to. I had a meaning when I inserted it. When a young man goes into a new district he says to himself, "I must get an inspectorhip." When he gets it, a party who has an outbreak of disease amongst his stock sends for him. Who is to pay him? The question has been put before the Privy Council, and the reply has been that the local authority must pay. But supposing the local authority says, "No ; we are not bound to do so." The inspector might say, "I will not go." But he must go, or he is liable to a fine. We have

abused the doctors, we must now turn to the local authorities, who do not make fair terms with their inspectors. This is a matter which should be pointed out to young men. I am very glad that I have met the feeling of my profession in the preparation of this paper, and I thank you sincerely for listening to me.

Mr. SIMCOCKS then put the following questions to the meeting :—

- (1) *Does Foot-and-mouth Disease originate spontaneously?*
- (2) *Is the present Act sufficient for the purpose of suppressing it?*
- (3) *Are the suppressive measures warranted by the nature and results of the disease?*

To these questions the meeting gave the following replies :—

- (1) No.
- (2) Yes.
- (3) Yes.

The PRESIDENT : I am sure that we have great cause to thank Professors McCall and Williams for the excellent papers they have written. I beg to propose a vote of thanks to these gentlemen, and I know that you will all heartily agree with me.

The vote of thanks having been unanimously accorded,

Professor MCCALL said: I return you sincere thanks, gentlemen. I had some reluctance in accepting the task of writing the paper. Some of you may think that I might have touched upon other points, but I thought that it was best not to do so now, as we shall have other opportunities of discussing the subject.

Professor WILLIAMS: I thank you very much, gentlemen, for your kindness towards me. It has been a great pleasure to me to attend here, amongst so many old friends.

The first day's meeting then terminated.

THE LANCASHIRE VETERINARY SURGEONS' DINNER.

IN the evening of the first day's sittings, the Lancashire Veterinary Surgeons entertained a large number of the members at dinner at the Grand Hotel. The President (Thos. Greaves, Esq.) occupied the chair, supported by the Mayor of Salford and the officers of the Association; the vice-chairs being occupied by Messrs. John Lawson and W. A. Taylor. Among the toasts were :—

"The Queen and the Royal Family" (chair).

"Army, Navy, and Volunteers" (the Mayor of Salford). Dr. Fleming, P.V.S., and J. Lambert, I.V.S., responded.

"The Houses of Parliament" (Dr. Tatham). In the absence of Sir F. Fitzwygram, M.P., and Mr. W. Agnew, M.P., Mr. Simpson, J.P., acknowledged the toast.

"The Medical Profession and Allied Sciences" (Professor Walley). Responses by Dr. Martin and Dr. Briggs.

"The National Veterinary Association" (Dr. Martin). The President responded.

This social repast was very much enlivened by some capital songs by Messrs. Ed. Faulkner, A. Lawson, G. Locke, etc., and a well-executed recitation by Dr. Briggs.

SECOND DAY'S SITTING.

MAJOR SUBJECT III.

INFLUENZA.

BY PROFESSOR PRITCHARD.

IN bringing under your notice the subject of Influenza, it is not my intention to enter into a lengthened thesis upon the disease as seen in the horse. Firstly, because the time at my command will not allow of my doing so; secondly, because the subject-matter is too extensive to be thoroughly dealt with in one paper; and thirdly, in my humble opinion, a short, concise paper, briefly setting forth what may be taken to be the principal points worthy of discussion, is the more suitable to the purpose of a gathering similar to the one to which I have the honour to present this. Holding these views, therefore, I shall confine myself to attempting to bring before you, for your consideration and comment, some of the most important facts in connection with this malady—Influenza—shortly setting forth my own views; and I invite every one to freely and fully discuss such views, so that by a frank interchange of opinion, a more correct knowledge of the nature of the disease, and the modes of combating it may be approached, and a consequent general benefit ensue.

Of the history of Influenza I shall say nothing beyond that there can be no doubt it made its appearance in England a century and a half past, and that from time to time since that period it has visited different parts of the country, in various forms, and with differing severity, up to the present.

The causes which are in operation to give rise to outbreaks of the disease are, to say the least, exceedingly obscure, and although some of the most learned in the matter have for years past worked hard to discover the origin of its visitations, I believe that, even up to the present time, but little is known which can be relied upon respecting its first source of origin. In my own experience I have known it break out at all times of the year, in all kinds of weather, in all kinds of stables, when the dietetic arrangements have been very different—indeed, I may say, under all kinds of circumstances. Very varying are the theories which have been advanced by authors and others regarding the originating cause of the complaint: the character of the soil, exhalations from the earth, temperature, foggy state, excess of ozone in, and other conditions of the atmosphere, the presence of certain animal or vegetable organisms in the air, food, or water, and other ideas have been advanced as representing the primary origin, but one and all of them have either been refuted, or failure of proof has so far negatived them. For my own part, I am inclined to think that the poison of Influenza exists in the atmosphere; it may be that this is a material devoid of any definite structure, which, when introduced in the system of an animal, produces the morbid changes in the blood noticed; or it may be depending upon a parasitic organism capable of reproducing itself under favourable circumstances; but whether it be one or the other, I am convinced in my own mind that the atmosphere is the means by which the virus, whatever the true nature of that may be, is conveyed. With reference to the malady being contagious, after listening to much argument, and having read considerably opinions *pro* and *con*, and having carefully studied and observed the cause of several outbreaks, I have come to the conclusion that this disease is not contagious. To deter-

mine this point, I admit, is a matter of considerable difficulty, because it is next to impossible to decide whether the fresh case is owing to contact with the last, or due to the animal being subjected to the same atmospheric influence. I have, however, based the opinion I hold mainly upon the following facts :—The suddenness with which a stud of horses will become affected, and the rapidity with which a large area will become contaminated. When this disease makes its appearance in a stable, instead of days passing between the falling ill of the animals, a number will become affected in a few hours. On one of the last occasions when I was consulted, over fifty horses in a stud of a hundred and fifty became badly affected in the space of forty-eight hours, and the simultaneous manner in which Influenza will pervade miles of country is inconsistent with the opinion that its spread depends upon its contagious character.

It is not only a quick, unusherred visitor, but its stealthy disappearance is incompatible with the contagious theory. Then it must be borne in mind that—at least, so far as I am aware—it has never been propagated by inoculation.

Again, there are unquestionable instances of its spontaneous appearance. These, with other circumstances unnecessary to detail, I consider, fairly point out that, correctly speaking, Influenza is not contagious in its character, and that the affected animals are not the cause of its diffusion—beyond, perhaps, their being the means of adding to the amount of the specific poison with which the atmosphere is charged.

The manner in which this disease, Influenza, manifests itself varies very much—indeed, to such an extent, that I am inclined to agree with the theory advanced by Mr. Hunting, viz, at some not very distant period we shall discover that under this name we are dealing with several maladies which, although in many respects alike, are nevertheless in others sufficiently distinct to allow of their being separately recognised, which may be traceable to different causes, and necessary to be dealt with in different ways.

The fact of our giving distinct terms to some of its forms, the different manner in which the malady runs its course, together with the variety of the results which follow upon its attacks, in my opinion, suggest to us the necessity of further research, which will probably lead to the conclusion that under this vague term, Influenza, we are really dealing with a class of diseases instead of a separate and distinct one. So far as our present knowledge goes we recognise that the poisoned state of the blood creates an extraordinary sudden nervous depression, a condition palpable even in mild attacks; febrile symptoms are marked, and, as a rule, the mucous membranes exhibit the specific effect of the introduction of the morbid material. In very many cases those of the eyes and respiratory tract are affected; in others, that of the digestive organs is more particularly involved; while in some the lining membrane of the urinary apparatus is implicated.

Whichever portions of the mucous tracts are affected, it is usual to find them congested, in many instances to a considerable degree, while the secretions thrown out from them are altered both in quantity and character.

In many cases the symptoms are slight, amounting simply to a moderate increase of the pulse, elevation of temperature, a watery discharge from the nose and eyes, a little staring of the coat, and a general dull appearance of the animal; but in others these symptoms are all much aggravated, and, depending upon the organs or parts of the body affected, additional symptoms become apparent; thus is it that in one form we find there are indications of Jaundice; in another, the head and extremities are enlarged from serous effusion; in another, we notice all the symptoms of Congestion of the Lungs, or lining membrane of the chest, or both; in another, great congestion of the lining membrane of the eyelids, usually associated with a relaxed

condition of the bowels, and even dysentery, but in some instances with a constipated or torpid condition of the bowels ; in some few instances I have known the brain to be so congested as to give rise to symptoms of partial paralysis ; and in others to cause absolute insensibility for from twenty-four to forty-eight hours. In other cases, associated with the febrile symptoms, have appeared all the indications of acute Laminitis, and in some few I have noticed functional derangement of the action of the heart and diaphragm. Such are some of the symptoms which are noticed in the so-called different forms of Influenza, and, depending upon the parts of the body with which the *materies morbi* more particularly interferes, so its results will differ : hence we find as legacies, Roaring and Whistling, chronic diseases of various of the viscera, Rheumatism, Hydrops Pericardii, Hydrothorax, etc.

In dealing with the question of treatment, I think it unwise to lay down any defined line, beyond certain principles which I think are imperative, because it is absolutely necessary to vary the treatment according to the form the attack assumes. I need not speak of the necessity of complete ventilation and drainage ; of the preservation of the equal temperature of the body by clothing ; and, if necessary, the application of stimulants to the extremities. I would recommend the free use of diffusible stimulants, and, as a febrifuge, the sulphate of magnesia ; the diet, I consider, should be small in quantity, and of an easily-digestible character. Other treatment must be dependent upon the symptoms presented, the practitioner keeping in mind the prostrating nature of the malady, and the depressed state of the nervous system which invariably ushers in the attack.

Mr. W. A. EDGAR: Mr. President and gentlemen, the subject selected for our consideration this morning is one possessing almost unlimited matter for discussion ; and I hope that you will not estimate the importance of the subject by the length of the paper. I will not occupy your time by attempting to point out the advantages which must result from this discussion. Owing to its very wide distribution, its somewhat frequent occurrence, and the considerable inconvenience and loss attending an outbreak of the malady, it is imperative that we should possess all attainable knowledge respecting it. The disease possesses some hereditary solemnity ; men have regarded it with a certain degree of awe, and the treatment of it is somewhat vague. Professor Pritchard has dwelt more especially upon that point from the discussion of which I think we shall derive most advantage, viz., the etiology of the disease. The literature of any subject may be taken to show the knowledge possessed concerning it ; and I must admit, that any one trusting to our English books upon this malady would find his mind in a perfect chaos. There are many affections included under this term. We should clearly understand the grounds upon which we build our views of the malady. The questions I propose now are as follows : Is Influenza a specific disease ? and can it arise spontaneously ? If we can prove that it possesses the character of a specific disease, we shall be compelled to admit that it cannot arise spontaneously. We will take the line usually adopted, of comparing it with those diseases recognised as specific. I am not here to say that I have discovered any specific organism in connection with this disease ; but I think that sufficient evidence could be adduced to enable us to place Influenza with the zymotic diseases, and to say that it cannot arise spontaneously. If we compare the history of this disease with the history of those which are recognised as specific, we shall find that there is a very close analogy. There was a time when England was free from the malady. We find the first recorded instance of it—as far as we can judge from such evidence as we have—in Spain, at about the close of the thirteenth century. Since then it has acted as a specific disease. It has had its periods of quiescence and

activity. In the early part of the seventeenth century it was in France and Germany. In 1727 the first outbreak occurred in Great Britain. Coming to more modern times, we find that the periods of quiescence have usually been about seven or eight years, and it has been marked, as other specific diseases, by about from twelve to eighteen months at a time of activity. In 1850 we had a remarkable outbreak in this country. In 1872 and 1873 it swept through the American Continent. We find that the longer the period of quiescence, the greater its activity when it breaks out. As soon as it made its appearance in America it swept through the whole of Canada and the United States. Professor Pritchard, on page 54, says: "In my own experience I have known it break out at all times of the year, in all kinds of weather, in all kinds of stables, when the dietetic arrangements have been very different—indeed, I may say, under all sorts of circumstances." Here we find proofs of the invasion of a specific malady; it is not controlled by local surroundings. Then again, Professor Pritchard takes up a most extraordinary position. He makes the bold statement that "Influenza is not contagious in its character, and the affected animals are not the cause of its diffusion—beyond perhaps their being the means of adding to the amount of the specific poison with which the atmosphere is charged." There he takes it that the atmosphere is the medium through which the virus is disseminated. Now, gentlemen, we should be clear upon this point. I should like to use the term "infective," because it is a question of medium. If we compare the various specific diseases we find that the virus of one is capable of being conveyed in the air. That of another is too solid and must have some solid material whereby it can be conveyed from one animal to another. The organisms may be transmitted in both ways. Tuberculosis is an illustration. Every one knows of the late experiments to demonstrate that Tuberculosis is transmissible. It has also been proved that the organisms of Tuberculosis exist in the atmosphere. The experiments by the leading physician in the Brompton Hospital prove that the atmosphere there is teeming with the bacilli of Tuberculosis, yet we have to conclude, if we agree with Professor Pritchard, that animals suffering from this disease are no source of danger. I will give one or two illustrations of the way in which the disease extends itself. In 1883 a surgeon in London bought two horses; they were passed as sound by a veterinary surgeon, and conveyed by road to a place twelve miles distant. The next morning one of the horses was ill and the disease turned out to be *Influenza*. This gentleman possessed three other horses when the two above mentioned were introduced. These three horses were perfectly healthy before the arrival of the others, but within three days the whole of the horses in that stable were suffering from specific *Influenza*. In another instance, a gentleman bought a horse in London. It was brought into the town I reside in, and placed in a stable with three other horses, which were perfectly healthy. The new arrival gave evidence of being affected with *Influenza*, and again, within three days, the whole stable was affected. Such cases as these leave no doubt in my mind that the disease is infective, and that it can be transmitted from animal to animal. We find that it possesses all the characteristics of a *specific* disease. There is a well-marked, although short, incubative period. Let me call your attention to one point upon which Professor Pritchard bases his opinion that it is not a contagious disease. He says, "I have based the opinion I hold mainly upon the following facts, viz., the suddenness with which a stud of horses will become affected and the rapidity with which a large area will become contaminated. When this disease makes its appearance in a stable, instead of days passing between the falling ill of the animals, a number will become affected in a few hours." This is no evidence of the disease not being contagious. We find that the period of quiescence may last from a few hours to a much longer period in different maladies. Take Rabies as an

instance of a long incubative period. Why should we limit the incubative period? Then he says, "over fifty horses, in a stud of one hundred and fifty, became badly affected in forty-eight hours." With regard to this I remark that Influenza manifests itself remarkably quickly, but the incubative period requires careful investigation, to tell when the disease was first communicated. If a diseased animal is introduced to a stable of healthy horses they are all exposed alike, and may be all infected at the same time, and may manifest the disease in a marked form in forty-eight hours. But after the healthy horses have breathed the virus from the infected animal it will be found that there is a well-marked incubative period, although it may be only a short one. I have taken the temperature of animals periodically, and found that there was a rise in temperature twenty-four hours before the symptoms showed themselves. I consider that this proves that there is an incubative stage in Influenza. As to the disease occurring in different species of animals, we find that it affects the human subject, horses, dogs, etc. I know that I may be treading upon dangerous ground, when I say that I believe Influenza in the horse and Distemper in the dog are different manifestations of the same malady. We can trace a strict analogy in many of these forms. We find that Influenza is incurable. I say this advisedly, because a *specific malady* cannot be cured in the same sense as a *sporadic malady*. Will any gentleman say that when Influenza is well developed he can cut it short as he can a sporadic malady? We can, as has been well said, steer our patient through the disease, but as regards Influenza we should expunge the word "cure" from our vocabulary. The semiology of the malady is so well known that it would be presumption to say anything about it. It is, however, necessary that we should differentiate between this disease and others allied to it. Professor Williams regards the malady as non-specific. Dr. Fleming says, "My own experience inclines me to look upon it as a communicable malady," and in 1883 he says, "That multiform and infectious malady." Professor Robertson says, "There seems strong reason to doubt that, even under such adverse influences as these, the specific maladies—of which Influenza is one—are capable of being produced, unless the specific virus is present." If we go to a foreign authority, Professor W. Dieckerhoff, who has given this malady most exhaustive attention, says that it is a specific, contagious, febrile disease; that its origin is always to be traced to contagion, about ten per cent. of animals being unsuceptible of taking it. In some instances he places the mortality as high as twenty per cent.; in others, five per cent., and in others lower. English veterinary surgeons, such as Mr. Gresswell and Mr. Broad, of London, have expressed their opinions as to its being a contagious malady, the former concluding that it is due to a specific virus. There are many gentlemen here who have had vast experience in the treatment of the disease. I will not, therefore, say much upon that point. We should be guided by broad principles. Our object must be to guide our patient safely through the malady. As to its never having been propagated by inoculation, this is not a proof that it is not a specific malady. We find that specific lung lesions (in "Contagious Pleuro-pneumonia" of cattle) cannot be produced by inoculation.

The PRESIDENT: Mr. Edgar has placed his views before us in a very agreeable manner, and I have followed his remarks with the deepest interest. We shall be very pleased to hear the opinions of other gentlemen. I would remind you that ten minutes is the limit of time for each speaker.

Professor MCCALL: I have always thought that Influenza was an *infectious* disease. Latterly I have been convinced that it is a *specific disease* and contagious. The first year I practised in Ayrshire an innkeeper purchased a horse, which was shortly afterwards taken with Influenza, and from that centre the disease spread right and left; we could trace every outbreak to

this centre. A farmer stabled his horse in the innkeeper's stables, and a few days after his return home all his animals were affected. I will relate another case. Two years ago Influenza was very bad in Glasgow. One man had it amongst his stallions. These horses were sent on their journeys, and everywhere they served mares we had Influenza. Two or three of the stallions contaminated so many mares that they were sent home again. The next season it was thought that they were all right, but again they produced Influenza. I again attended the district examining the animals, and had no doubt that it was Influenza. I thought that I should like to prove that the stallions were contaminating the mares. I had one of them put to a mare, and just as he was about to spend I had him pulled off, and secured the semen. I brought it home to Glasgow, and injected it into a mare's vagina. It had not the slightest effect upon the mare. I obtained some more of the fluid and again injected it into a mare, at the same time inoculating her with it in the neck. It did not produce Influenza, but the mare had an abscess in the neck. The peculiarity of the case is that these mares, after they had been served by the horses, did not affect other mares. Nor did the stallions affect other horses while standing in the stable. I do not know whether any gentleman has met with a similar case in his experience. I think that the disease is specific, dependent upon specific organisms, and that it is infectious and contagious.

Mr. MOIR : I have not the slightest doubt as to this disease being contagious. In the colliery district from which I come, a horse is not allowed to be put down a coal-mine until it has passed through a quarantine of from eight to ten days, and Influenza is unknown there.

Mr. HUNTING (of London) : When I explain the circumstances surrounding pit-horses, you will better understand that what Mr. Moir has told us is very suggestive. The temperature in a coal-mine varies very little all the year round, and we find that horses in these mines are free from catarrhal complaints. There are no circumstances in a coal-mine which would give rise to Influenza ; but when this disease is introduced it spreads rapidly. I agree with Mr. Edgar in thinking that all positive evidence points to this disease as being contagious. There may be negative evidence the other way ; but when we consider how easily the disease is carried from place to place, it is a wonder that there are not more outbreaks of which we cannot trace the cause. Another argument as to its being a contagious disease is, that we can name the time when it first appeared in this country. I cannot agree with Mr. Edgar that Influenza in the horse and Distemper in the dog are different manifestations of the same disease. In 1727 we had Distemper in horses, but not in dogs ; in 1763 we had Distemper in dogs, which was traceable to importation. I think that under the term "*Influenza*" we have several specific diseases, which we do not differentiate. We now confuse them in the same way that doctors used to confound typhoid and typhus. There was something very mysterious in what Professor McCall told us, because, if the disease was spread by the horses going from place to place, it ought to have been communicated by the mares to those in the same stable. I think that the facts we have, both negative and positive, point to this as decidedly a specific malady.

Mr. EDGAR : I should like to remark that, although Influenza may not be transmitted from the horse to the dog, this does not show that what I said was not true.

Professor WILLIAMS : A great deal can be said on both sides. The evidence is overwhelming in favour of the spontaneity of Influenza, and most powerful in contradiction of it. We see cases where it is impossible to prove the contagious origin of Influenza ; they are so well recorded that it is impossible to doubt that the disease does originate spontaneously. I do not

mean to say that Influenza is not a contagious disease ; but drawing a comparison between Influenza and Cholera, I think we have two remarkable instances of a sporadic malady arising from causes external to the animal body, existing in the air or food, becoming contagious owing to the organisms which are injected into the animal's body attaining virulent properties as they pass through that body. When the Cholera broke out in Egypt the doctors stated that it was not imported from India, but that it was due to the marshes of Egypt, but still they say that Cholera is a contagious disease. We can account for these sporadic attacks of Influenza by referring to what has been advanced by many, viz., that there are certain conditions of the atmosphere when there are—as has been proved—clouds of bacteria, which animal bodies take in. These, passing through the animal's body, attain virulent properties. We know, also, from the experiments of Pasteur, that it is possible to render these bacilli innocuous by cultivating them in various fluids. I can thoroughly understand that Influenza can originate from a certain condition of the atmosphere, and that the germs, passing through an animal's body, attain contagious properties, and can then be conveyed from place to place and spread the disease. I think that the history of the disease proves this : Take the case of the outbreak in America where, simultaneously with the outbreak in New York, the disease occurred in places hundreds of miles apart. These cases could not be put down to contagion. They arose from a condition of the atmosphere. As to the identity of Influenza with the Distemper of the dog, I see no analogy whatever between them. They are two different diseases. You can always trace the origin of Distemper. It is a disease which develops more slowly than Influenza. In Distemper, the dog gradually gets worse and worse ; the horse is knocked down at once with Influenza. And then we have paralysis in the dog but not in the horse. In the dog we have a most remarkable evidence of a disease which affects many structures. As to treatment, I have found no good effects follow from administering large doses of diffusible stimulants. There may be cases in which the prostration is so great, that a powerful dose or two is required. I can safely say that my success in the treatment of this disease has been equal to that of any one in this room. By these stimulants, the animal is relieved for a time, but at the cost of the exhaustion of the tissues of the body. If the animal is partaking of no food, there is no supply going on, and when the fuel is burnt out where are you ? You are left out in the cold. Give small and repeated doses if you like, so long as they promote the appetite.

Mr. J. LAMBERT : I am sorry to differ from Professor Williams as to the pathology of Cholera. The best authorities have maintained that it never occurs unless it has been brought from India. A celebrated German investigator came to the conclusion that it could not arise spontaneously. I know that a commission of English surgeons in Egypt came to the conclusion that the disease was partly endemic to Egypt, but the best authorities think that it cannot be produced by marshes or anything of that kind. I was once living where Cholera was within 200 yards of us. At that time there did not appear to be so much known about it as now. We never heard anything about boiling water or taking precautions as to food, or anything of that sort. It is my opinion that there are many diseases besides the ordinary forms of Influenza that we must recognise as contagious. It is the opinion of very many old grooms that Catarrh is sometimes contagious, and I have found them to be right. In the army we take precautions about " Strangles." Many also think that Pneumonia in the horse is contagious, and I think there is some truth in this. It is said to be caused by changes of temperature. Over and over again, after being in hot stables, we have been ordered out, and had to picket the horses in the open ; and such changes

were followed by no untoward results, and animals that had coughs whilst stabled, left off when picketed outside. On one occasion it rained more or less all day, and the horses were standing in mud, but there was no sickness. I throw out the suggestion that Pneumonia depends on some mysterious cause other than change of temperature. In Woolwich—and Mr. Elphick will bear me out here—we have barracks where what is called Influenza breaks out every year, and there are other barracks, close to, where it has not occurred. As to “Pink Eye,” we have opportunities in the army of enforcing precautions which you have not. I will only make one remark as to the treatment of chest diseases. My brother, who is a very large practitioner in Ireland, always says, “Never give drenches in chest diseases.” He is certain that many more horses are killed in this way than people imagine, from the drench going down the trachea.

Professor WALLEY: Mr. President and gentlemen, the Paper written by Professor Pritchard is sufficient to originate discussion upon this subject, and being put together as it is, it leaves plenty of blanks to be filled up. As to the nature of the disease, I have no doubt that it is purely and simply a specific fever, in every acceptance of the term. That it is contagious and infectious, I have no doubt. There have been cases enough cited here to-day to show that. This disease was brought to Edinburgh by a horse travelling with Wombwell’s Menagerie, and numbers of horses which were put into the stable after this one took it. Another case which occurs to my mind is that of a horse which was taken from Edinburgh into Aberdeenshire, to a farm, and immediately afterwards the disease broke out, although it had not been there before. That case mentioned by Professor McCall shows that Influenza is contagious. This is not an isolated case. Mr. Elphick, of Newcastle, if he were here, could tell you of one exactly similar; so could Mr. Mitchell (and in the latter case the owner was the brother of one of my own students), showing that a stallion suffering from the disease may impart it to mares that he covers. The malady is also spread through the agency of water. So much do I believe this to be the case, that immediately I hear of an outbreak, I advise the magistrates to shut up the water-troughs. Every trough is provided with a tap, by means of which you can stop the supply of water. I believe that Influenza belongs to the miasmatic class of diseases. I believe that the virus of the malady can live and multiply outside the body of the animal. This is overlooked. Here we have the secret of the periodical attacks of Influenza. When we have a long continuance of wet weather, we have probably an attack of Influenza; we have just the influences required for the development of these organisms. The origin of Distemper in the dog has been mentioned. I do not think that Mr. Edgar intended to say that the two diseases are identical. They both develop themselves under similar circumstances; they are both due to specific organisms; they both run through a somewhat similar course, and you are very likely to get similar results if the diseases are suppressed. Influenza is always worse where it is neglected, and so is Distemper. If the diseases run their course, and the symptoms are well shown, you are not so likely to get unfavourable results. You get paralysis in the dog; so you do in the horse, over and over again. During an attack of Bilious Fever, I have had two cases of paralysis, with effusion and intense congestion of the spinal membrane. I have seen “Pink Eye” propagated to cows. With regard to Bilious Fever, I have seen the same thing in the dog, when it is prevalent in the horse. You will see that I am using one or two terms, such as Bilious Fever. I believe that Influenza assumes various types. There are the Bilious or the Yellow Fever, the Catarrhal Influenza, and the Effusive Fever. Any one of them may develop similar results, because you have to deal with a poison. As to the evolution

of noxious organisms from the innocuous, I am a believer in evolution, and have always held that such a thing can take place. As to the treatment of Influenza, I am one of those who thoroughly believe in treatment, but you cannot lay down a defined line. You must take each case on its merits. I have been sometimes tempted to bleed, and have had people say to me, "These cases used to recover more quickly when we used to resort to bleeding." We cannot cure the disease, but we can modify it. I have often heard people say that they never give medicine, but when I inquire further, I find that they pin their faith to ammonia. I would sooner trust to ammonia than to any other medicine. As to the use of stimulants, I cannot agree with Professor Williams that stimulants do harm. The pulse often rises from weakness; alcohol will lower it, and will frequently cause the animal to eat. As to the means for prevention, I grant that our services are often not sufficiently appreciated and paid for, and we often cut the ground from under our own feet. Mr. Taylor asked about disinfectants. The record of last year's proceedings will show of what I approve. I say that the best is sulphurous anhydrid. This can be obtained in a fluid or solid form. It is our duty to recommend these disinfectants, and to adopt every means of prevention.

Mr. A. INGLIS MCCALLUM: My experience tells me that an animal may start on a journey in apparently good health, but before it has been out two hours it may be seized with the symptoms of Influenza. I think that if we are called in within the first forty-eight hours we may modify the malady; if the disease has been going on for longer than this, it is very often too late. With reference to the suddenness of the attacks, the veterinary surgeon often has it in his power to encourage litigation, or to stop it. A month or two ago, a case came under my notice, in which an animal was sold in good health. The purchaser used the horse, but returned it one day later than was stipulated, saying that it was a roarer. A veterinary surgeon examined it, and said that it was not a roarer, and the seller refused to take it back. I examined the horse and found that it was suffering from Influenza. In this case there was likely to be litigation. In my opinion the seller was justified in refusing to take the animal back. Relating to what Professor McCall said, I may mention that I was called in to see a mare which had caught Influenza from a stallion. I was afterwards sent for to attend the foal, but by the time I arrived the animal was dead, and at the *post-mortem* examination, there were all the appearances of Influenza.

The PRESIDENT: In the absence of any other member rising, I will give the results of my experience of fifty years of a pretty large practice amongst cart-horses in Manchester. When we hear such directly opposite opinions we are inclined to say, "Who shall decide when doctors differ?" In the large establishments I am accustomed to attend, I have noticed that we go sometimes for months without any attack of Influenza, when all at once I am called in and find some of the horses with signs of Influenza, and very likely on the same day I am called in another direction to similar cases, and before a week there is a wholesale attack of Influenza throughout the town. Can this be contagion? No, it is a mysterious influence in the atmosphere. In these large establishments, they bring in at certain seasons, a number of young animals to take the place of those which have been worn out, and so on. Nearly every one of these young horses becomes attacked with Chest Influenza, from which, as a rule, they recover; but scarcely one of the seasoned horses become affected. I have known this over and over again. If this were an infectious disease, every animal in the stable—or most of them—would be attacked. Then, again, I could mention large establishments where, at one time, Influenza was never absent for many weeks together. The drainage was then in a wretched condition—the effluvia so bad, that sometimes one could scarcely bear to be in the stables. In these stables,

the paving has been taken up, the drainage put right, and from that day to this we have scarcely had a case of Influenza. In these cases the disease was not produced by infection, and I am quite certain that it is not a contagious disease. I have read nearly every work that has been written upon the malady.

Mr. PETER TAYLOR : Our profession is very much like the clerical profession. Unfortunately there is a great difference amongst our professors and amongst our practical veterinary surgeons. I think that it will always be so. Hence the necessity for our National Veterinary Association to enable the different members of our profession to interchange their ideas. I think that our President is confusing two different diseases. Influenza is no doubt a contagious, specific, inflammatory fever. Veterinary surgeons should always err upon the safe side, if they err at all. We have a form of Influenza in Manchester called "Chest Influenza," which is not Influenza. I am certain that it is possible to modify Influenza by the administration of carbonate of ammonia, nitrate of potash, and sulphate of soda. As to what Professor McCall said of a stallion giving the disease to a mare, I should like to know whether, after he had recovered, he would propagate it in a second copulation.

Mr. HOPKIN : I think that in this discussion some are thinking of one malady and some of another. The disease we meet with every day amongst young horses, and occasionally even amongst seasoned animals, is a very different thing to Influenza. Influenza is a vague term. I was sorry not to hear Mr. Edgar's opening remarks. His analogy between Distemper in the dog and Influenza in the horse fails in some of the sequelæ. I never found a case of chorea follow Influenza in the horse. I have found partial paralysis, but not so bad as in the dog. As to diffusible stimulants, I have always given a little well-boiled oatmeal with them. I should like to ask those gentlemen who regard the disease as non-contagious if they would like to have a horse suffering from Influenza introduced into a healthy stud belonging to them. It would help us in discussing this malady if we classified the different diseases we now regard as Influenza.

Mr. ELPHICK : I hold that this disease is due to a specific poison. At Woolwich the stables in which it breaks out are the only stables in the Infirmary in which horses come into contact with other horses. A peculiarity about the case is, that only horses freshly put into the stables become attacked. We have very few old horses, which have been in the stables a long time, affected. The drainage of the Old Horse Artillery stables is imperfect, and on going into them you notice a most unpleasant smell. I think that in this case the disease is not true Influenza. It is not contagious, and affects only the lung tissue.

Professor AXE : I very much regret that I have not perused the paper. I gather from the course of the debate that the chief question you are considering is the contagiousness or non-contagiousness of Influenza. Whilst I have been sitting here, I have thought that a large amount of labour and time might be spared if, instead of going over the old track, over and over again, reiterating statements made by our forefathers, we were to appoint a *Committee of Investigation* on the subject of Influenza. If we were to open an inquiry on a scientific basis, we should not then, as Mr. Taylor has said, be in the dark on the question throughout all time. If the matter were carried out in a proper spirit we should disperse those clouds of obscurity which prevent us arriving at fixed conclusions. As to the specific nature of Influenza there can, I think, be no question. It is specific because it is capable of being transmitted from one animal to another ; not necessarily by contagion ; but certainly by infection : that is to say, through the medium of the atmosphere. I base these conclusions upon observations which have been

made under circumstances perhaps as favourable to arriving at a fixed conclusion as can be formulated by the ordinary means of experiment. I believe that the means at our disposal in our infirmaries place within our reach methods of observation which are as precise as those formulated by well-conducted methods of experiment. We really cannot be expected to believe that the cases which come before us are the result of mere accident. Our President appears to think that there is some quality in the atmosphere itself, which is the cause of the malady, but he has not formulated its nature. A statement like this strikes me as being very misleading. In my view of the question the utility of this National Veterinary Association depends upon its relegating to certain committees certain inquiries, to be pursued by scientific men. I should have wished to pursue this subject further, but I see that the time at our disposal has nearly expired.

Mr. WOLSTENHOLME : After the remarks which have fallen from our President, I think it to be my duty to say something. At the end of last year some cases of "Pink Eye" occurred at the western end of our city. If it had been owing to atmospheric conditions, it would have passed over the town. One case attended by our President was so bad that Mr. Greaves thought he would like to have it removed, and a client of mine allowed it to be put on his premises. My client's horses had to pass near to this animal to get to their stable, but never came into actual contact. In about two days the freshly-introduced horse died. At about the fourth day a horse of my client's was attacked, and six out of seven of his horses went through a severe form of the disease. If we are in any doubt as to the infectiousness of the malady we ought to protect our clients by assuming that it is so, and by not allowing animals to be moved.

The PRESIDENT : The Chest Influenza, which I mentioned as attacking young horses, I should not consider to be true Influenza, in one sense of the word. The disease assumes various forms. The Influenza which is brought by atmospheric influences is that in which we have outbreaks occurring over a wide district. As to treatment, I say, give very little medicine. Simple treatment and good nursing is the best. I sometimes use nitrate of potash, in water.

Professor PRITCHARD : I must apologise to this meeting, and to Mr. Edgar in particular, for the late appearance of my paper. The original paper was lost in the post, and the greater part of the present one was composed in a railway train. I must generalise my remarks as much as possible. Time will not allow me to do otherwise. I quite expected that there would be six on one side and half-a-dozen on the other. I may be wrong, but I am inclined to think that if a vote were taken the majority would be found to be of the opinion that Influenza is not contagious. I have listened with much interest to what has been said, but you will not accuse me of being obstinate when I tell you that I am not convinced. One of my remarks has not been answered : I said that if it were due to contagion so many horses would not be seized in so short a time. Another point which has not been contradicted is, that Influenza will travel over a very large extent of ground in a very short time. I know of no other malady where this takes place to the same extent. As to what has been said with regard to this malady resembling Distemper in the dog, I consider that there is very little likeness. As Professor Williams has said, the manner in which the animals are attacked, and the way in which the diseases run their respective courses, are very different, and the same remark applies to the results. Who has ever seen a case of ulceration of the cornea of the horse as a result of this disease? Then with regard to Paralysis, I have seen this malady strike down a horse, and it has remained so for forty-eight hours. Who ever saw this in the dog? He will be seized with a paralytic fit, and if it occurs twice or

thrice it is pretty certain to be fatal. As to what Professor Williams has said, I believe that there are certain germs which pervade the atmosphere, and produce Influenza, not of a contagious character ; and I think that after passing through the horse they may be affected with certain additions which would allow of the malady being conveyed about the country. I hinted at this in my paper, when I said, "Beyond, perhaps, their being the means of adding to the amount of the specific poison with which the atmosphere is charged." A great deal, with reference to the point of contagion, has been said about conveying a horse from one part of the country to the other, but I noticed that the other side of the question was well avoided. Mr. Edgar alluded to cases of diseased animals having been taken into districts and creating an outbreak. Has he ever noticed the numerous cases where healthy animals have been taken from healthy localities into another district, and have become affected, although the disease has not before been in the stable where they are placed? In alluding to what Professor Axe said as to the investigation of the disease, I think that we should first see whether, under a vague term, we are not dealing with a number of complaints. As to treatment, I think we ought to bear in mind the locality in which we are placed. If you go to Edinburgh you will find that doses of aloes of from seven to twelve drachms are given, and the same thing may be said of the Eastern Counties. Our horses in London are just as well fed as anywhere else, but if we were to give them such a dose as I have mentioned we should kill them. The same may be the case with other medicines. I am constantly treating cases of Influenza, and I give large doses of diffusible stimulants. I have seen the temperature after two doses have been given come down from 107° to 101° . We have to consider the stage of the malady in each case. If I were called in to a case which had been neglected for twenty-four hours, I should not perhaps carry out my usual line of treatment ; but if we are called in when the animal's illness is first noticed we have a chance of dealing with the disease by diffusible stimulants. I believe much in the sulphate of magnesia, and think that it is the finest febrifuge we can give to the horse. I thank you, gentlemen, for the manner in which you have listened to me, and I congratulate myself that my paper has produced so good a discussion.

The opinion of the meeting was then taken as to *whether Influenza is a contagious disease or not?* Fifty-three members voted in the affirmative, and only seven in the negative.

MAJOR SUBJECT IV.

THE PREVENTION OF CRUELTY TO ANIMALS.

BY T. BRIGGS, F.R.C.V.S., BURY, LANCASHIRE.

IT will be as well at the outset to state that the purpose of this paper is rather to bring about a more satisfactory and sensible method of preventing cruelty to animals, than to essay a definition of what is and what is not cruelty. It is obvious, however, that this purpose cannot be strictly set. At the British National Veterinary Congress held in the month of July, 1881, a paper was brought forward on "Cruelty to Animals from a Veterinary Point of View," by Mr. W. Hunting, in which an attempt was made to state and classify what acts and operations constituted cruelty, and to some of the remarks made in the lengthy discussion which followed I shall have occasion to refer later on.

Great and well-merited praise is freely and fully given by all lovers of animals to the various societies that have been established by benevolent

and beneficent ladies and gentlemen. Foremost is the Royal Society for the Prevention of Cruelty to Animals, supported by voluntary contributions, and constituted of people whose kind-heartedness and generous sympathy for animals cannot be doubted. By its teachings and its precepts, this admirable Society has been the means of largely developing a better fellow-feeling for those creatures which destiny has doomed to be the companions and servants of mankind; and these domesticated creatures would, did they know how, willingly worship at the shrine of the Society. The Royal Society for the Prevention of Cruelty to Animals has done, and is doing, a great and a good work. Who can count the abundant abuses, and the innumerable cruel customs that have been exposed and abolished through its laudable exertions?—abuses and customs carried on from habit, or from fancy, and more for want of thought, possibly in indifferent ignorance, than from any intention of inflicting pain. After these loyal and cordial expressions of appreciation and good will, I regret that I shall have to deal somewhat largely in what, at first sight, may appear to be a spirit of antagonism to the Society, and to pass some severe censure upon its Executive.

“There is a lying spirit abroad” in the popular fallacy that veterinary surgeons as a body are prejudiced against the Society, and are perpetually prepared to thwart its good intentions by appearing in the witness-box to give evidence against the statements of its officers. This is not true. Indeed, nothing could be further from the truth. In the Report, Part I., of the Proceedings of the British National Veterinary Congress, for 1881, on page 106, Mr. Colam, the energetic and enthusiastic Secretary of the Royal Society for the Prevention of Cruelty to Animals, in the discussion on Mr. Hunting’s paper, is reported to have said: “When occasion requires, I sometimes address a letter, asking you for your opinion, and I have never yet done so without receiving great courtesy, and willingness to oblige me, which is gratifying, considering that you do not get any fees for these opinions. . . . We get your opinions, and disseminate them amongst the public.”

In speaking of a successful attempt to lessen the space of time in which cattle were allowed to travel on the railway without water, Mr. Colam says: “I issued a circular to all the profession; I got five hundred answers, and with them I went to Mr. Forster, and when this pile of papers were shown him, Mr. Forster said, ‘I am of your opinion.’ Our great object is to provide the animals with water when travelling, without removing them from the carriages.

“I am sorry to hear it sometimes stated that over-zealous charges are occasionally made, which are to be attributed to the number of sentimental ‘old ladies’ of the Royal Society for the Prevention of Cruelty to Animals. As one of the old ladies of the Institution, I must state that the remark is entirely false. I am sorry if any gentleman among you thinks that the Society is governed and maintained by old ladies. I beg to inform him that it is not so; the Society has not only maintained its reputation, but has gained additional reputation year by year. The object of that association is to be as practical as possible, and not to exceed the bounds of common sense. I am a responsible officer; if there are any cases brought before the magistrates that fall through, then blame me.

“The convictions of the Royal Society last year amounted to 4,500, and of that number, the cases which were lost were not more than two-and-a-half per cent. Can any one say, then, that it is governed by old ladies?

“In fact, it is our pride and boast that we are not old ladies, and if we have any doubt, we go to the veterinary surgeons, and we say to them, Are we wrong, or are we right in this matter?”

It is when the Society stretches its arm too far, and plunges promiscuously

into prosecutions, seriously interfering with rights and privileges which certainly ought to be enjoyed by respectable veterinary surgeons, that affections are alienated, assistance refused, and an attitude of hostility assumed. No man has the same accurate and reliable knowledge of what is likely to produce pain in an animal, the same opportunities and the same power to alleviate pain, as the veterinary surgeon. Who can say with truth that these opportunities and this power are lost sight of, or ignored, or wilfully misapplied? If the Society in its restless resolve to be continually extending its provinces, lets reason run rampant, and by intentionally or unintentionally impugning the motives which influence the opinion of the respectable and responsible veterinary surgeon, is it to be wondered at that local and influential men cannot be easily enlisted in the services of the Society?

Dr. Fleming says, on page 110 of the said Report, "The position in which the veterinary profession stands with regard to cruelty to animals, is a very proud one. As I said in my inaugural address yesterday, I look upon the position of a veterinary surgeon as one of humanity to animals.

"His office is a grand one in this respect. He knows all about the animals; he should know what is necessary pain, and what is not—in fact, I look upon the veterinary surgeon as the scientific and almost the natural protector of animals. I therefore think the position of our profession with regard to animals as even with that of the medical profession.

"The veterinary surgeon has to deal with dumb animals, that cannot complain, the noblest of which is an animal whose early days are passed in luxury, but whose old age is harassed with torturing work.

"I allude to the horse. You know perfectly well no animal suffers more at the hands of man. I think, gentlemen, there is no need to urge upon the veterinary profession the necessity for the observation of kindness to animals. I am quite sure, if a veterinary surgeon has an operation to perform, he will think much of the way in which it can be performed, and as to how it should be performed. I have hesitated for days about performing an operation on horses in my regiment before I could nerve myself to do it. The more one operates, the more tender one becomes—that has been my experience.

"You must remember, though, that even at present, the profession is particularly exposed and tempted to perform unnecessary operations, and this operation of 'docking' must be looked upon as unnecessary; but we must make exceptions. In the case of disease, or of a vice to be cured, then the operation is necessary, and by that means it is removed from the category of cruel operations."

After further alluding to docking, cropping ears, "punching out horse's teeth," and vivisection, he goes on to say:—

"I am quite sure that the profession in this country requires no urging in its endeavours with regard to cruelty to animals. I am certain, also, that its feeling is entirely with the society for preventing cruelty to animals. I have been a member of the Council of the Royal Society for the Prevention of Cruelty to Animals since the death of Professor Spooner, and I can give you an assurance that the Council are extremely anxious that every case should be fairly considered *before any action is taken upon it*, and that the opinion of the veterinary surgeon should be taken in any case of doubt.

"I think there is the closest bond of union between the Royal Society for the Prevention of Cruelty to Animals and the veterinary profession. They are both working on the same lines, but we go further than the Royal Society; we also try to improve the condition of animals, we also endeavour to increase their utility to the very utmost of our power. . . . *The question of utility is always an important one in such decisions.*

"A necessary operation is not cruelty, but an unnecessary operation is

certainly cruelty. *It remains for the profession to decide as to what operations are necessary and what unnecessary.*"

According to the utterances of Mr. Colam and Dr. Fleming, there would appear to be a spirit of unanimity between the Society and our profession ; but ask the veterinary surgeon who practises in the larger towns if this is so.

Year by year some of its quondam friends desert it, and when an important prosecution is undertaken, a somewhat false impression is created in the public mind by the fact of the Society having to send to London, or some other distant place, for professional evidence of weight and authority to support it. There are quite as humane and independent men in the provinces, and the Executive of the Society knows full well why these men are not forthcoming to help it. Following in the footsteps of most powerful bodies, a course of procedure having been entered upon, nothing is allowed to stand in the way of an ultimatum—a conviction in favour of the Society as a precedent—a precedent to be pleaded and paraded ever afterwards, before every bench of magistrates in the kingdom.

Take, for instance, the determined and desperate efforts that are being made to obtain a conviction in a high court of justice in favour of the Society against docking. Mr. Colam says :—

"With regard to docking of horses, I am in a position to state that it is considered cruelty, and if I can catch any single member present docking a horse, I shall prosecute him. I tell you so at once ; it is now decided that when any man who performs an operation on an animal that is not for the benefit of the animal itself, or *for the benefit of mankind*, that operation constitutes cruelty."

Docking, when practised right and left, without discrimination, discernment, or real reason, is brutal butchery, and cannot under the most favourable circumstances be performed without more or less pain. It would be out of place here to discuss when the operation should be resorted to. The most prominent professional opponents of docking admit that at times the operation is "necessary and advisable." The subject has been thoroughly thrashed out of late, and there is a remarkable consensus of opinion in our profession against the Society dictating to us when the operation is permissible. The profession has, in the most unhesitating manner, declared almost to a man against the Society in the matter of docking.

In the VETERINARY JOURNAL for June, page 471, is a report of the evidence of Dr. Fleming in a "docking" case brought before the magistrates of a small town in the North Riding of Yorkshire, on the 3rd of May. Let us carefully study what he says :—"He had about 15,000 horses under his charge. He had paid special attention to docking, especially in connection with army horses." If, as he says, the practice "had been prohibited for upwards of twenty years," where and when has he paid his special attention to docking in connection with army horses? He continues, "Not merely veterinary surgeons, but also soldiers and officers, were strongly against docking." Now I publicly challenge him to bring forward the names of fifty influential veterinary surgeons, whose experience is not principally connected with the army, to support his statement. Of soldiers I know nothing, but I have not met an officer who has objected to a horse for private purposes because the animal's tail has been docked. Dr. Fleming also said, "Docking was a great disadvantage to horses, as they then lose their natural defence against flies. [So horses do when their tails are shortened by cutting the hair only.] In cases where horses have not been docked, it was found that their tempers were much improved." It would be interesting to know how it was "found" to be thus, and how "much" the tempers were improved. I dispute his last assertion, "From evidence he had collected, he had found the majority of accidents happened with horses whose tails had been docked."

Is not this sort of evidence eminently unsatisfactory, conflicting, and inconsistent?

Grievances and abuses are probably best remedied by agitation, and the present tirade against docking will undoubtedly be productive of good results. Many horses that would have been needlessly and ruthlessly docked will now be spared the full stump, and it is to be fervently hoped that for the future the operation will be properly performed, with a fitting instrument, and the searing iron abandoned. Personally, I am as much against docking for docking's sake as any man, but I most strenuously protest against this earnest endeavour of the Society to get in the thin end of the wedge. I claim for the great majority of my professional brethren, and for myself, as fine feelings of humanity and sympathy as those possessed by any member of the Society, and I would scorn to think that we require the surveillance and constant watch of its officers to keep us from being criminally guilty of cruelty to animals.

I will now proceed to the consideration of a more conflicting class of cases, viz., old-standing, chronic cases of lameness, and deformities in the horse. Very great judgment and care are required to arrive at anything like a correct opinion, and to accurately ascertain the actual amount of discomfort and pain the animal suffers. There would appear to be one law for the rich and another for the poor, judging from the manner the Society carries on these cases. The greatest hardship is inflicted upon the poorer owners of animals. The method adopted in this part of Lancashire is somewhat as follows:—An officer of the Society picks up with a veterinary surgeon who is out of luck, and has nothing to do, and takes him for a day's outing to some neighbouring town. By a curious coincidence, the time chosen is generally the morning of a day upon which the local magistrates sit. On arrival at this town, a stroll is taken along one of the thoroughfares, most likely one leading from a coal wharf. A man is seen coming up the street with a halting or a lame horse. The poor fellow is stopped by the officer, and the inevitable crowd gathers. If there is anything like a chance of a case, the man and the horse are forthwith marched off to the police-station. The culprit is, rightly or wrongly, taken into custody, brought before the magistrates, probably fined, and the whole affair over in a few hours, the bench and the public being reconciled to these summary proceedings by the plausible plea that it saves time, trouble, and extra cost.

Within the city of Manchester it is often the custom—if the magistrates have finished their sittings for that day—for the officers of the Society, on detecting “a case of cruelty,” to seize the horse and place it in the City Pound, or elsewhere, and tell the driver that he is to appear at the police-court at such a time on such a day—no warrant and no summons being issued. For this system simplicity can be claimed, but is it not very peremptory?

If, however, the cripple belongs to a man in a higher position of life, nobody is locked up; the drivers' and owners' names and addresses are noted by the officer, and a summons is taken out for some future day, when the case is heard.

Great hopes were held out here when the Royal Society superseded the late Manchester Society, that these inconsistent irregularities and absurd anomalies would be done away with. They may be. They have not been as yet.

A very unsatisfactory incident in the conduct of cases which require the accurate knowledge of an experienced veterinary surgeon to determine the amount of suffering, is the very *decided* evidence of the officers of the Society.

(To be continued.)

Army Veterinary Department.

Gazette, May 29th.

Inspecting Veterinary Surgeon Charles Steel to be placed on retired pay.

Veterinary Surgeon (First Class) John Anderson to be Inspecting Veterinary Surgeon, *vice* Charles Steel, retired.

In his final despatch to the Secretary of State for War, in alluding to the services of the different corps and departments under his command in the Suakin Field Force, Lieutenant General Sir Gerald Graham, K.C.B., mentions that "the Veterinary Department was well managed and gave satisfaction."

Veterinary Surgeons E. E. Bennett, A. Jones, C. J. Gillard, and J. Baldock have been invalided to England from the Soudan. The last-named officer was so seriously ill from heat exhaustion, that on arrival at Portsmouth he had to be transferred to the Royal Military Hospital at Netley. Veterinary Surgeons Gladstone, Griffiths, Dundon, Smith (S. M.), and Taylor have also been in hospital during the campaign. Veterinary Surgeon Willows, who accompanied the Australian contingent to Suakin, has also been ill at that place.

Veterinary Surgeons Aitken and Hagger have arrived in England from Suakin in charge of the horses of the 5th Lancers and 20th Hussars.

The Principal Veterinary Surgeon had the honour of being invited to, and was present at, the State Dinner given by the Marquis of Hartington, Secretary of State for War, at Devonshire House, on the Queen's birthday.

At the Levée held by the Prince of Wales at St. James's, on May 9th, First Class Veterinary Surgeon J. B. W. Skoulding was presented by the Adjutant-General, Sir Archibald Alison, Bart., K.C.B.

Obituary.

Melchior Guzzoni, Professor of Special Pathology and Clinical Director in the Milan Veterinary School, in February last, after a short illness, aged forty-one. C. Neuschild, Professor of Farriery in the Dresden Veterinary School, also died recently. The death is also announced of Dr. Karl v. Siebold, Professor of Physiology and Comparative Anatomy in the University of Munich, whose name is well known to helminthologists in connection with the natural history of tape-worms.

The demise is reported of William Roberts, late Farrier-Major of the 4th Hussars, and one of the Balaclava Six Hundred. He died at Nottingham, aged fifty-three.

Notes and News.

LINNÆAN SOCIETY.—First Class Veterinary Surgeon J. T. Symonds, Army Veterinary Department, has been elected a Fellow of this Society.

SWINE PLAGUE.—The Royal Academy of Medicine of Brussels, among several subjects selected for theses and prizes, have named the following : “The study of Erysipelas, *charbonneux* or *rouget*, of swine, as relating to its causes, manifestations, lesions, prophylaxis, and treatment, and to establishing eventually its relations with carbuncular or bacterian diseases.”

HERMAPHRODITISM IN THE GOAT.—At the meeting of the Academy of Medicine in Ireland, on April 24th, Dr. J. Cunningham, the President, made a communication on hermaphroditism in the goat. The external genitals showed merely an imperforate clitoris-like body, and behind this an aperture just large enough to admit a goose-quill, through which the animal micturated. One oval body, which felt like a testicle, was detected in a diminutive scrotum. On opening the abdomen, a large bicornuous uterus was discovered, with a capacious vagina imperfectly marked off from it. This vagina opened into the uro-genital sinus, which in turn opened on the surface at the aperture before mentioned. Two well-developed testicles occupied the places of the ovaries in the broad ligament, and each showed a small hydatid of Morgagni and a large organ of Giraldès. The latter had been injected with mercury, and a connection had thus been established between its tubes and those of the globus major and the tubuli seminiferi of the testicular body. The vas deferens ran down in the wall of the uterus (like the duct of Gartner in the sow) and opened into the uro-genital sinus. Embedded also in the wall of the vagina were traces of the vesiculæ seminales. The author regarded it not as a case of true hermaphroditism, but as a case of hypospadias in conjunction with a great development of the vesicula prostatica.—Dr. Purser suggested that in such cases there should be a complete and thorough microscopic examination. There were some animals in which the genital gland was neither completely male nor completely female, even in animals high in development ; for instance, the common toad had in the upper part of the testicle an organ which was not functionally an ovary but was structurally an ovary. In amphibious animals, it was by no means uncommon to find in the same animal a more or less developed testicle, and at the same time a well developed oviduct. Again, in some of those cases when the testicles had been cut into, there had been found embedded therein bodies precisely resembling ova. This mixture of the male and female sexual organs was a question very much of degree, and it was not unlikely that it would be found that in the genital glands there were represented both the male and female cells, both ova and spermatozoa.

VIVISECTION.—A return has been issued by the Home Office containing the reports of inspectors showing the number of experiments performed on living animals during the year 1884 under licenses granted according to the Act 39 and 40 Victoria, c. 77, distinguishing painless and painful experiments. The former of the two reports deals with England and Scotland, the latter with Ireland. They are as follows :—“1. The names of the 49 persons who held licenses during any part of the year are given in the subjoined tables, in one of which are entered the names of those licensees who performed any experiments, 34 in number ; and, in the other, the names of those who performed none. 2. The total number of experiments of all kinds performed during the year was about 441. Of these, 140 were done under the restric-

tions of the license alone ; 78 under the same restrictions, but under certificates in column 1 (lecture illustrations) ; 145 under certificates in column 2 ; 76 under those in column 3 ; and 2 under a certificate in column 4. 3. With regard to the infliction of pain, as in all the experiments, except those under special certificates in columns 2, 3, 4, the animals are rendered insensible during the whole of the experiment and are not allowed to recover consciousness, no appreciable suffering would be caused if the provisions of the Act are faithfully carried out, as there is not the least reason to doubt they were. With respect to experiments under certificates in columns 2, 3, and 4, which dispense either wholly or partially with the use of anæsthetics, it should be stated—(a) That of the 145 experiments performed under certificates in column 2, 99 consisted in simple inoculation with a morbid virus, in which no operation beyond the prick of a needle was required, and for which the administration of an anæsthetic would only have entailed needless annoyance and distress to the animal. In these experiments, any appreciable suffering would be felt only in those cases in which the inoculation took effect, involving about the same amount of pain as ensues on ordinary vaccination, before the brief period the animals were allowed to survive. Of such cases, according to the returns I have received, about 16 occurred. Of the remaining 46 experiments under these certificates, 24 were performed for the purpose of medico-legal inquiries in cases of suspected poisoning, resulting in the death by Tetanus of three frogs, and six mice, which survived, however, only a few minutes ; 10 other cases under the same head were experiments on the infection of fish with a species of fungus, very destructive in certain rivers and streams ; and 5 on the effects of immersion of fish in distilled water, which proved fatal to about 30 minnows and sticklebacks. In none of these cases could it be said that any appreciable suffering was inflicted. In 7 cases, in which salts of ammonia were hypodermically injected, two are returned as having suffered pain, but of a very trifling character. (b) Of the 76 experiments under certificates in column 3, 47 required a simple operation, but this being done under anæsthesia was unfelt, and the after effects, though in many of the cases resulting in partial paralysis, are reported as having been unattended with actual pain in any case. The remaining 29 were by simple inoculation, and none were attended with pain. 4. In conclusion, therefore, it may be stated that the amount of direct or indirect actual suffering, as the result of physiological and therapeutical experiments performed in England and Scotland, under the Act, in the year 1884, was wholly insignificant. GEORGE BUSK, Inspector. The Right Hon. the Secretary of State.” “16, Harcourt Street, Dublin, May 17. Sir,—In accordance with your instructions I beg to submit the following table, showing the licenses in force in Ireland during the year 1884, under the Act 39 and 40 Victoria, c. 77. No certificate has been allowed during the year. Several of the licenses in force during the previous year have expired, and renewals have not been sought for. Under the licenses in force 13 experiments have been made ; they were all painless. I am of opinion that the experiments in question were useful ones ; 11 of them were intended to elucidate the actions of drugs, and the remaining two to assist the investigation of certain circulatory phenomena which have a bearing upon the treatment of disease. I have, etc., W. THORNLEY STOKER. To the Right Hon. the Chief Secretary for Ireland.” In each case the report is followed by a list of all persons who hold such licenses, the places where they are permitted to make experiments, and the nature of the certificate held.

Correspondence.

CONTAGIOUS PUSTULAR STOMATITIS AND HORSE-POX.

SIR,—If Professor Walley will please to look again at my letter under the above heading in the May number of the Journal, he will find that there is no justification whatever for his statement that I made any complaint against him because he did not give sufficient prominence to the fact of my having been the first to describe the disease in this country. I cannot conceive how he came to make such a statement, as I made no complaint of the kind he alleges, and there was no occasion or desire to do so, as I presume the fact is known to all who follow with any interest the progress of veterinary medicine in this country. In my letter I was only moved by the desire to know what Professor Walley meant by the term "Horse-Pox" or "Equine Variola," if the disease which he witnessed was not that malady, but a distinct disorder; and I must confess that I am no wiser now. The notions with regard to Equine Variola and Vaccina are so diverse, and especially as to their origin, that I might be pardoned if I endeavoured to elicit the opinions of those most competent to speak upon such a subject. With regard to the generalisation, to a limited extent, of the eruption in two of my cases, I may remark that there was no indication whatever of auto-inoculation—no more, in fact, than in a case of Glanders accompanied by the eruption of Farcy; though in "Veterinary Sanitary Science and Police" (vol. ii., p. 79) I have alluded to the possibility of auto-inoculation. With respect to the abortive treatment of "Foot-and-Mouth Disease, I spoke only of the vesicles, which can certainly be checked in their development by appropriate treatment, though the fever may persist. Suppurative Lymphadenitis has frequently been observed, and if I remember aright, Professor Trasbot, of the Alfort Veterinary School, not long ago published a paper in which, owing to the frequency of this phenomenon—or, rather, epi-phenomenon—he insisted that Horse-pox was Strangles, or *vice-versâ*, and that cases of the latter usually had the characteristic eruption about head or in the mouth. In "Veterinary Sanitary Science and Police" (vol. ii., p. 80) I have described the nasal eruption of Horse-pox as nearly always coincident with implication of the submaxillary lymphatic glands. In conclusion, I can only repeat that in noticing Professor Walley's observations on the so-called Pustular Stomatitis my sole object was to obtain information regarding an interesting disease, or class of diseases, to which I have given much attention for a long time. The disease described by the Professor, and which, I believe, is the same malady I have seen, may not be of the nature of Variola; but my experience of it led me to conclude it was, and this conclusion had been arrived at by others before me. I never questioned Professor Walley's having seen typical cases of Equine Variola; I merely mentioned that he had not described them—and I believe this is true. I earnestly hope that all who have the opportunity of witnessing Variola or the varioloid disease in animals, will not hesitate to give us the benefit of their observations, and especially afford us a description of the symptoms presented.

G. FLEMING.

SPAYING: IS IT JUSTIFIABLE?

SIR,—It is to be regretted that a gentleman so thoroughly conversant with the subject of spaying as Mr. Welham, should have travelled away from the question asked, and omitted it altogether in his very amusing letter about pigs, farmers, alcoholic poisoning, horse-coping, and the frequent incompetence of veterinary surgeons to perform an operation which, he says, they alone should be permitted to attempt. In asking the question, Is spaying

justifiable? I did not include the question of, Is it remunerative? or, Is it necessary, in order to compete with unqualified practitioners, that we should do it? I am one of the number who *do* practise it when obliged, and in self-defence, but am not the less anxious to see discontinued a practice which, to my thinking, is unnecessary, and therefore cruel. If we take no higher ground than that it is *remunerative*, we should still go on "nicking," "cropping," and "dubbing," and perpetuating all the other cruel customs handed down to us.

HAROLD LEENEY, M.R.C.V.S.

DISEASE AMONG ANIMALS IN SOUTH AUSTRALIA.

SIR,—In the September number of the VETERINARY JOURNAL, pages 189 190-1, my annual report is brought under notice.

An unfortunate mistake has occurred, which I suppose must be attributed to the manner in which the report had been printed.

Swine Fever, Farcy and Glanders are understood to be prevalent in South Australia. The paragraphs following "Foot-and-Mouth" Disease in Great Britain, noting on Swine Fever, Farcy and Glanders, and Pleuropneumonia, refer to the state of those diseases in Great Britain, to which our stockowners naturally turn with interest, and in the province it was so understood.

I shall feel obliged if you will note that neither Swine Fever, Farcy, or Glanders, has ever been known in South Australia.

I may say that stock of all descriptions in South Australia are remarkably healthy and free from all descriptions of disease; so far as Scab in sheep is concerned, there has been no case for over thirteen years.

I am exceedingly sorry that the error should have occurred.—I have the honour to be, sir, your obedient servant,

Adelaide, Nov. 7th, 1884.

C. J. VALENTINE,
Chief Inspector of Sheep, South Australia.

[The error was due to the manner in which the report was printed, and we are very pleased to learn that this important colony is so free from not only contagious, but sporadic diseases.—Ed. V. J.]

KUMRI.

DEAR SIR,—When Mr. Skoulding wished to tell you of his supposed right to the discovery that "Kumri" was not a true paralytic disease, he need not, in his over-anxiety to do so, have been so rude as to charge me with misappropriating his ideas, etc.

I deny the correctness of these charges, and have, moreover, repudiated them, with due contempt, to his face, and he has expressed his readiness to withdraw what I consider incorrect and offensive.

Though bound to reply, I regret this addition to the unbecoming controversial literature which has recently crept into fashion.

RICHARD POYSER, V.S.

UNQUALIFIED VETERINARY SURGEONS.

SIR,—Will you kindly allow me, through your columns, to call attention to a subject which, in my opinion, is of very great importance as affecting the profession. I refer to the case of unqualified persons practising as veterinary surgeons, men who are not even registered as "existing practitioners."

I am aware that a considerable amount of sympathy is shown these "horse doctors," as they are sometimes called, because they happen generally to be locally connected with the place in which they carry on their operations. Let me give an instance.

A man who had for many years acted as a veterinary surgeon (unqualified) in the neighbourhood of the town in which I reside, died. His "practice" was immediately taken up by his son, who had previously been engaged as a groom in the locality. This individual is now practising and advertising himself upon his labels as a "veterinary surgeon."

A practice thus carried on is manifestly unfair to the profession, the members of which have devoted time and money to enable them to qualify for the difficult and delicate work which they have to perform.

I believe I am correct in stating that an Act of Parliament distinctly prohibits a practice being carried on by an unqualified person, and provides for heavy penalties being imposed upon any person who offends against this statute.

It seems to me the difficulty is how to put the law in motion. If a qualified V.S. takes proceedings, he is simply bidding for his own unpopularity in his neighbourhood, and is immediately charged with selfishness.

It is a matter of such vital interest to our profession, that I would suggest, in the event of the Council not being in a position to undertake it, that a fund should be started, and supported by an annual subscription from qualified veterinary surgeons (country ones especially, they being, I believe, most affected), which should be used for the purpose of prosecuting in all cases where a practice is illegally carried on.

"A SURREY VETERINARY SURGEON."

THE EDUCATION OF VETERINARY STUDENTS.

SIR,—I can candidly endorse every word of "Actual Work's" letter in your last issue, on the above subject.

I could speak of many instances in which a holder of the diploma of the R.C.V.S., when brought to see a case of, say, simple lameness in a horse, had not the slightest idea in the world what to look for, and where to look. Some time ago I was called in to see a cow which had recently calved; two or three women, in a state of excitement, were around the animal, taking turn about at holding a large cloth to the vagina, with the object of keeping something in which would cause instant death should it escape. On asking about this terrible thing, I was told that Mr. So-and-So had been there some hours before, and had told them that "the womb was coming out," and on no account were they to allow it to do so. After some remonstrance, and not before I had promised that if it should come out I would replace it, I was permitted to make an examination, when lo! the "womb coming out" was found to be a normal placenta.

The sorry fact is, that the young vet. had never seen a cow calved in his life; hence the mistake.

When men are passed into our profession without a particle of experience or practical knowledge, how can we expect any advancement in veterinary science?

An ounce of experience is better than a pound of theory, and only in some such establishment as your correspondent suggests can men be trained, who otherwise have not the opportunity to acquire that knowledge which alone can make them successful practitioners.

JAS. MCDUGALL.

Old Kilpatrick, Glasgow.

TO THE MEMBERS OF THE YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

(We have been requested to publish the following letter.)

GENTLEMEN,—I am in receipt of your letter regarding the articles I have published in the *Yorkshire Weekly Post*. It is unfortunate, in view of the light in which you have looked upon them, that I should have undertaken to supply a limited number, of which some are already in type, the rest almost completed. For, although I am convinced that the articles can never be of the slightest harm to the members of the profession, yet I should have been willing to have conformed to your desire.

The erroneous opinions of the public on veterinary matters are a source of much evil, not to the public only, but specially also to the profession, and error is pregnant with evil fruit at all times. Moreover, the writing on veterinary matters in popular journals is a course adopted in some of the best known periodicals; I am, therefore, at a loss to see the object of your noticing in particular my special set. I am, gentlemen, of opinion that the more the public arrive at a clear understanding of the disease of animals, the more they will seek your advice and careful attention, and the more they will appreciate your services.—I am, yours faithfully,

J. B. GRESSWELL.

TO CORRESPONDENTS.

F.R.C.V.S.—It will be better now to let the subject drop, and end the discussion, as it is about to be brought before the Council of the Royal College.

Several communications, as well as the report of the Norfolk and Eastern Counties Association, which cannot appear this month, will be published in our next issue.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from W. O. Williams, Edinburgh; C. J. Valentine, Adelaide, South Australia; R. H. Harrison, Boston; W. Broughton, Leeds; J. A. Nunn, Lahore; A. Broad, London; "A Surrey Veterinary Surgeon"; W. Shipley, Great Yarmouth; F. Smith, A.V.D., Bangalore; T. Greaves, Manchester; R. Poyser, A.V.D., Woolwich; T. Donald, Wigton; E. Kitchin, Liverpool; H. Leeney, East Grinstead; T. H. Lewis, Edinburgh; R. S. Barcham, Paston; J. McDougall, Old Kilpatrick.

BOOKS AND PAMPHLETS: *Dr. Putz*, Ueber den Kampf gegen die Lungenseuche; *W. Robertson*, Notes of Lectures on the Practice of Equine Surgery; *E. Vogel*, Hering's Operationslehre für Tierärzte; *C. Steffen*, Handbuch Thierärztlichen Chirurgie; Annuario d. R. Scuola Superiore di Medicina Veterinaria di Milano per l'Anno 1884-85.

JOURNALS, ETC.: *Centralblatt für Chirurgie*; *Tidschrift för Veterinar-Medicin*; *American Veterinary Review*; *Journal of Comparative Medicine and Surgery*; *Lancet*; *Scottish Agricultural Gazette*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Animal World*; *British and Colonial Druggist*; *Der Thierarzt*; *Mark Lane Express*; *Annales de Médecine Vétérinaire*; *Live Stock Journal*; *Kansas Live Stock Indicator*; *Clinica Veterinaria*; *Edinburgh Medical Journal*; *Chicago Live Stock Journal*; *Österreichische Vierteljahresschrift für Wissenschaftliche*; *Der Hufschmied*; *Archiv für Wissenschaftliche*; *Revue Vétérinaire*; *Repertorium für Thierheilkunde*; *Deutsche Zeitschrift für Thiermedizin und Vergleichende Pathologie*; *Archiv für Wissenschaftliche und Praktische Thierheilkunde*; *Zeitschrift für Vergleichende Augenheilkunde*.

NEWSPAPERS: *York Herald*; *Edinburgh Courant*; *Lahore Civil and Military Gazette*; *Eastern Daily Press*; *Madras Times*; *Madras Mail*; *Liverpool Mercury*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

AUGUST, 1885.

SPAVIN.*

BY G. A. BANHAM, F.R.C.V.S., CAMBRIDGE.

SPAVIN is one of those common deformities which are daily before us, and causes many a lawsuit in our courts. Therefore it behoves all of us to make ourselves acquainted with it, and be as unanimous in our opinions upon the various points connected with it as possible.

I shall endeavour to place all the main points found in our literature up to the present time before you ; but I must ask you to allow me a little indulgence on your time, because I am afraid my paper is rather long.

Nearly all my remarks will be found in one or other of the following works, viz.: Professor Dieckerhoff's "Die Pathologie und Therapie des Spats der Pferde," 1875 ; an article on the subject by Professor Dr. Schütz, 1870 ; Mr. Percivall's "Hippopathology" ; and Professor Williams' "Surgery."

Derivation.—The Latin word was used by Jordanus Rufus in 1250, but it is unknown whether he invented it or not. Blundeville, who wrote in 1608, called it the Spavin, from the Italian *spavano*. Skinner and Lemon derive it from the Greek word *spasmos* (σπασμος), meaning cramp or convulsion ; or it is possible it may be connected with the word *spasis* (σπασις), meaning a pulling, because of the snatching or stringhalt action, or, as the Germans

* Read before the Midland Counties and the Southern Counties Veterinary Medical Societies.

call it, "fowl-gait" (*hahnentritt*), which frequently accompanies the disease. James Winter, in his "Horse in Health and Disease," 1846, p. 347, says the word Spavin is derived from the French *éparvin*; while Percivall informs us that others derive the name from the French adjective *épars*, or the Latin *sparsus*, on account of the straddling gait so often seen accompanying this malady.

English.—Spavin, Bone Spavin.

German.—Spat (old, Spaat, Spath, Spaten, and Spathen).

French.—Eparvin (old, Esparvin, etc.).

Italian.—Sparagagno, Sparavano, Spavano, Spavuto.

Latin.—Spavanus and Spavenius.

Spanish.—Esparavan.

Danish.—Spat (Beenspat).

Swedish.—Spatt (Benspatt).

Although it is advisable to find out the origin of the words we use, still it appears more important to us to ask ourselves whether the term can with propriety be altered for a better. I must confess that I am still of Percivall's opinion upon this point, who says: "For my own part, I would fain discard the word *Spavin* altogether from our nosology, and in its place introduce some appropriate names for the three or four diseases it at present is used to denote; such, however, is the attachment for old or received appellations, such the prejudice against new ones, that I must confess I lack courage to embark in so ungracious an undertaking. One thing, however, I must do, and that is to circumscribe the meaning of the word *Spavin*, whenever and wherever I may use it, to that disease of the hock commonly called *Bone Spavin*," and I would add "*Occult Spavin*."

Literature.—No account of veterinary literature is found during the middle ages, with the exception of Jordanus Rufus, who wrote in 1250. In 1578 Max Fuggen wrote a book on "Breeding." In 1598 Carlo Ruini wrote "Dell'Anatomia et dell'Infermità del Cavello," a short diagnosis of the principal diseases of the hock; and in 1599 M. Scuter wrote one, entitled "Hippiatoia." In 1608 Thomas Blundeville wrote a work called "The Four Chief Offices belonging to Horsemanship." In 1664, Solleysel, a Frenchman ("La Parfait Mareschal")

pointed out the importance of the convulsive movement of the limb after standing, and allowing it to become cool. In 1716 Valentine Trichter wrote. In 1734 Saunier divided Spavin into three kinds, and pointed out the breeds of horses most subject to each. First, he says, well-bred horses are more subject to Dry Spavin (*l'Eparvin Sec*), which is transmitted to the progeny; secondly, Fat Spavin (*Eparvin Gras*) occurs in horses in damp situations (this is probably from strain, and what we term Thoroughpin); and thirdly, Ox Spavin (*Eparvin du Bœuf*), which is the worst kind. In 1754 Gibson wrote, "A New Treatise of the Diseases of Horses," and introduced the name Bone Spavin, and explained it thus: "The capsule was first filled with synovia, causing the swelling; this hardened, and ultimately formed a callus, which was Spavin." In 1757 Zehentner (a German) first introduced Occult Spavin. In 1768 Bourgelat and Lafosse wrote upon Spavin. Burger ("Die Veterinair-Diagnostik," 1830) divided Spavin as follows: 1, Pternophyma; 2, Largopterna Equorum (Curb); 3, Tarsociosus (Blood or Ox Spavin); 4, Tarsosteophyma Equorum (Bone or True Spavin). After this time numerous writers in all countries have given us their opinions of the causes and pathology of this disease.

Definition.—Each author gives a definition of this malady according to his own view of its pathology. But, for all practical purposes, I think we may define Spavin to be a complicated chronic inflammation of the hock-joint (Arthritis Chronica, s. Deformans) followed by the formation of new bone, which cements the small bones of the hock together, and produces an enlargement (exostosis) on the inferior and inner part of the hock.

Before considering this malady, perhaps it would be well if we look at the rough anatomy of parts involved.

Anatomy.—The bones which enter into the formation of the hock are:—(1) Inferior articular end of tibia, (2) Calcis, (3) Astragalus, (4) Cuneiform magnum (scaphoid), (5) Cuneiform medium (great cuneiform), (6) Cuneiform parvum (small cuneiform), (7) Cuboid, (8) Superior articular ends of the large and small metatarsi. These go to form four articular rows, viz.: (1) between the tibia and astragalus (true hock-joint), (2) be-

tween astragalus and calcis on the one hand, and the cuboid and magnum (scaphoid) on the other, (3) between the cuneiform magnum superiorly, and the cuneiforms medium and parvum inferiorly, (4) the cuboid, cuneiforms medium and parvum superiorly, and the three metatarsals inferiorly. The bones of each row are united together by inter-osseous ligaments, and the rows are joined by capsular and inter-articulate ligaments, and the whole are held together and strengthened by the large superficial ligaments.

The flexion and extension of the hock is kept in unison with that of the tibio-femoral joint, through the connection of the M. Gastrocnemii posteriorly, and the flexor metatarsi anteriorly. The flexor metatarsi is divided into two portions, a muscular portion and a tendinous portion. The latter takes its origin, in common with the extensor pedis, at the fossa on the external part of the inferior end of the femur (between the external trochlea and condyle). It passes down over the fatty cushion and a large bursa (which is in direct communication with the femoro-tibial joint), to join the muscular portion, which arises from the supero-anterior part of the tibia. They pass down—loosely connected together by connective tissue—to the inferior part of the tibia, where the tendinous portion forms a loop for the tendon of the muscular portion to run through. From this loop three insertion branches are given off. The external one becomes attached to the cuboid bone. The middle branch passes straight down, and is inserted into the large metatarsal bone. The internal branch *spreads out into a fan-shaped tendon, and becomes attached partly to the large and small cuneiform bones, and head of the small and large metatarsals.*

After the tendon of the muscular portion has passed through the loop formed for it by the tendinous portion, it divides into two branches. The anterior one takes a straight course, and is attached, with the middle branch of the tendinous portion, to the head of the large metatarsal. *The internal one takes an oblique course inwards and backwards, over the cuneiform bones, under the sheath of the flexor pedis accessorius, and becomes inserted into the small cuneiform bone and head of small inner metatarsal bone.* This branch can be easily felt with the finger, and even seen in well-bred and thin-skinned horses.

Under this internal branch of the muscular portion of the flexor metatarsi, and upon the fan-shaped internal branch of the tendinous portion of the same muscle—i.e., between the two—we find a LARGE BURSA extending over the cuneiforms magnum and parvum and head of small metatarsal bone. Anteriorly it extends to the front of the hock; superiorly it is in apposition with the capsule of the true hock-joint. The innermost layer of this bursa lies on the internal branch of the tendinous portion of the flexor metatarsi; its external wall lines the inside of the internal branch of the muscular portion of the flexor metatarsi. But there is a portion of the bursa which is not covered by this tendon; this part is below the tendon, and only covered by subcutaneous tissue and skin. The bursa is always damp and smooth, but never contains any fluid, except in cases of disease, such as Dropsy of the Bursa. Each joint-surface of the bones of the hock is covered by naked cartilage, and each row of bones has a separate joint capsule, which commences where the periosteum ceases, at the junction of the articular cartilage and bone. The articular cartilages are separated from the cancellous tissue of the bones by a thin, bony plate (lamina terminalis).

Physiology.—The hock is one of the most, if not the most, important joints of the body, for riding and driving horses. The peculiar “catching” movement of the joint used to be wholly attributed to the formation of the bones, but now-a-days we apportion this action to the elasticity and position of the ligaments and tendons, and their connection with other joints. The action of the hock does not simply depend upon its own conformation; but it is governed also by that of the hip and stifle joints; for, if these are badly formed, we at once see the disadvantage under which the hocks act. The angle between the tibia and metatarsal bones in a well-formed hock is about 140° .

Hock action is of the passive kind, for muscles of the hock, as such, hardly exist (Günther). This is demonstrated by the fact that if we make the tibio-femoral joint a fixed point, and then cause any single muscle below it to contract, it is difficult to produce either extension or flexion, which proves that extension and flexion of the hock only takes place by a similar extension and flexion of the stifle-joint.

Model.—Consequently, to obtain the proper action of the hock, we must have the muscles which act upon the stifle-joint well developed ; but, besides this, experience teaches us that the hock, with its tendons and ligaments, must also be well put together to stand hard work.

The connection which exists between the stifle and hock to secure their simultaneous action is, posteriorly, the gastrocnemii muscles, and, anteriorly, the tendinous and muscular portion of the flexor metatarsi.

Thus the “check apparatus” to flexion of the hock is the gastrocnemii muscles and fascia—the gastrocnemius externus being the most important—while the check to extension of hock is the tendinous and muscular portions of the flexor metatarsi, the former being the most important.

Physiologically, then, the foot of the horse includes the hock metatarsals and phalanges, and is not so different from that of man as it at first appears. The animal does not bear the whole of its weight on the last phalange, as it appears at first sight to do, because the “check apparatus” just mentioned takes the whole of it. It is this arrangement of the tendons (ligaments) which allows horses to stand for the length of time we know, from experience, they can do.

When a horse moves forwards, he takes the hind limb from the ground by flexing the joints, brings it forwards and places it on the ground again ; then by extension of the joints, due to the muscles of the hip and stifle joints contracting, the body is propelled forward on the foot as a pivot. The hock has to carry the greater part of the weight, and it is enabled to do so by the arrangement of the tendons mentioned above.

This is seen in rupture of the Achilles tendon ; the horse cannot put his weight on the foot, and when the tendinous portion of the flexor metatarsi is ruptured, the horse can no longer flex the hock.

Etiology.—The causes of Spavin may be divided into external, extrinsic, or actual causes, and internal, intrinsic, or predisposing.

The Internal (or Intrinsic) may be classified as : (1) Defective histological arrangement of the tissues ; (2) Imperfect confor-

mation of the hock ; (3) Imperfect construction of other parts of the body ; and, (4) Bad temperament.

1. By a *Defective Histological Arrangement of the Tissues*, we understand some abnormality in the composition of the materials forming the hock-joint, or, as Virchow calls it, "cellular weakness," whereby the tissues are incapable of resisting the wear and tear of ordinary work. For instance, some have thought that a porous condition of the bone (a minus of earthy matter) predisposes to Spavin, whereas others may say the opposite of this ; or excessive hardness of the bone, or a very thin layer of cartilage over the bone, would be less likely to resist concussion, which some give as a cause. However, it is a fact that young horses are more subject to Spavin than old ones, and the tissues at this age are soft and immature, therefore more liable to become diseased. The joints, ligaments, sheath, bursæ, periosteum, and bones are easily irritated at this age.

2. *Imperfect Construction of the Hock* may be a predisposing cause of Spavin. Thus, when a hock has an angle less than 135° , it is too much bent, or, as it is termed, "*sickle-hocked*." Such hocks will not stand fast work, however ; they are more predisposed to Curbs than Spavin.

Cow Hocks are those in which the calces are close together, and the metacarpals pass from inwards above to outwards below ; these are more liable, says Dieckerhoff, to enlarged bursæ than Spavin.

Straight Hocks are those in which the point of the hock (calcis) is placed near to the tibia, and the angle of the hock is larger (more than 160°). Dieckerhoff says these hocks are more predisposed to inflammation of the flexor pedis bursæ (Thorough-pin) than they are to Spavin.

Wide Hocks, or hocks wide apart, are usually caused by uneven pressure on the feet from bad shoeing, such going continually on the external wall of the foot ; or to disease of the fetlock-joint.

There is no mathematical exactness of the length, width, and depth of the hock in various-sized animals. This must be judged from experience.

Length is reckoned from the point of the calcis to the head of the metatarsal bone.

Width from back to front, superiorly and inferiorly.

Depth is the thickness from external to internal sides.

Horsemen often speak of "strong" and "weak" hocks. The former signifies that the hock is conformable in length, width, and depth, of a proper angle and natural position; the latter signifies the opposite.

Large or Powerful Hocks are distinguished by length, width, and depth, with large bones for firm and extensive attachments for ligaments and fascia.

Small Hocks are those which appear small when compared to the other parts of the body. They are usually accompanied by "light bone" and "no legs," and afford little attachment for ligaments, etc.

Flat Hocks are those which appear laterally pressed together; they are predisposed to Spavin, like the last.

Narrow Hocks are those which appear small from a profile view, or are straight and upright, and are predisposed to all kinds of disease.

Laced-in Hocks are those which appear small at the inferior part or head of metatarsal bone.

Günther says this kind of hock is due to the extensor pedis being bound close to the bones, but Williams says it is owing to the bones themselves (cuneiform bones and head of metatarsals) being smaller.

Short, Thick, or Round Hocks, are due to the os calcis being short, thereby giving the other bones undue appearance of size. Dieckerhoff says these hocks are more liable to bursal enlargements than to Spavin, but this seems to be the shape most predisposed to Spavin, in Percivall's estimation.

Another intrinsic cause is that given by Williams, viz., the screw action of the astragalus, which produces compression of the cuneiform bones during excessive flexion. But if this were the case, would not the rule be that Spavin occurred in front of the hock, and not at the side? and would not the astragalus and cuneiform magnum be most frequently implicated?—whereas we know this is not so.

3. *Imperfect Conformation of the Body*.—The lighter the abdomen and the longer the back and loin, the more stress there

is on the hinder extremities ; because more power is required to overcome the weight of the forehand and to keep the equilibrium of the body. Such animals, as a rule, have an imperfect digestive apparatus, and are not able to assimilate sufficient food to maintain their strength ; and the tissues of the body are indifferently nourished and weak (minus of tone).

The Pelvis may be narrow, or the ischial tuberosities may be short, in which case the muscles attached to them are small, weak, and short, the latter producing what is termed “*goose-rumped.*”

The Patella Joint should form an angle of from 120-130° between femur and tibia. If it is smaller, the animal tires quickly, and the tendon of the flexor metatarsi is easily excessively extended.

4. *Bad Temperament.*—Irritable and high-spirited animals put more exertion into their labour than is necessary ; therefore the strain and tension of the muscular and tendinous structures is greater. They are usually bad walkers, consequently concussion is continually going on when they are out. They are also usually delicate feeders.

External Causes (Extrinsic or Exciting), as Percivall says, may be divided into two general heads—the one being those agents giving rise to extension, strain, sprain, and laceration of the fibrous tissues of the hock, the other concussion of its joints.

Dieckerhoff says Spavin is caused by inflammation of the bursæ under the medial branch of the muscular portion of the flexor metatarsi, produced by excessively hard work, heavy weights, galloping, pulling-up short, covering mares, hill work, high-calkined shoes, etc. ; also to traumatic causes.

Food, either deficient in quantity or quality, may so alter the tissues that they are predisposed to sprain. Thus, horsemen practically know that animals fed on grass and watery food-stuffs, with little exercise, are unfit to undergo any severe exertion ; or are, as they call it, “not in condition.” Such animals are liable to suffer from sprains, etc., of various tissues of the body. The same occurs after any illness or long rest.

Spavin may also result from the Rheumatic Diathesis or Specific Arthritis, consequently to cold.

We also know inflammation of the sheaths and tendons often

follows Influenza, but Dieckerhoff says he has never been able to trace this as a direct cause of Spavin.

Pathological Anatomy.—The joint which is most frequently found diseased is that between the cuneiform bones. Next to this, the joint between inferior cuneiform and metatarsal bones, and occasionally that between the superior cuneiform and astragalus, and in very bad cases the true hock-joint itself is implicated. Changes are observed in the articular cartilages, bone, synovial capsule, periosteum, and surrounding fibrous structures.

The articular cartilages may be found swollen, bluish in colour, softened, or breaking down (Caries).

The articular end of the bones may be found either naked, and polished from friction of the bones with one another, or rough, from the formation of new bone, necrosed ; or ankylosis with the bones in apposition, may have taken place.

The synovial capsule is inflamed, the papillæ become enlarged in size and number ; some may be connective tissue, others are cartilaginous, whilst others may be ossified.

The periosteum becomes inflamed, and forms new bone around the joint. This inflammation extends to the ligamentous structures around, and earthy matter is deposited in the inflamed products.

Pathology of Spavin.—Various views are held, even in our days, as to the true origin and nature of Spavin ; some (as Schütz, of Berlin, Percivall, and Goodwin) saying the process commences in the articular cartilages of the joint ; others (as Professor Williams) contend that the bones first become inflamed ; others (Coleman) have said the inflammation commences in the periosteum ; others say it commences in the ligamentous structures, and some hold it may commence in one tissue at one time and another at others ; whilst others, again (as Dieckerhoff), maintain that the bursa under the internal branch of the flexor metatarsi is the first part to become affected.

Professor Schütz describes the process, commencing in the articular cartilages of the joint, as follows:—The cartilage first swells in different parts, due to a growth and multiplication of the cell elements of the tissue. This change takes place to the largest extent near the outside of the cartilage, where

the periosteum and synovial membrane join, *i.e.*, where the cartilage is best supplied with nourishment. The degeneration, or softening, of the cartilage, commences on the free surface, or that next the joint. This gives the free surface of the cartilage a velvety appearance. The process then proceeds to the deeper layers of the cartilage, and extends until the whole of the cartilage is destroyed and the lamina terminalis of the bone exposed.

The ends of the bones coming into contact with each other, and then rubbing together, causes them to become polished.

This simple chronic articular inflammation lays the foundation for the formation of new bone (exostosis): (1) On the lamina terminalis, whose surface becomes rough and uneven by small outgrowths of bone, which develop from the deeper layers of the swollen cartilage. This roughness of the articular facets of the bones causes great pain and lameness. (2) We find new formation of bone taking place outside the joints, *viz.*, from the periosteum; this interferes mechanically with the movements of the joint.

This formation outside the joint varies in degree to a large extent, according to the intensity of the inflammation, producing the unevenness on the outside of the medial surface of the hock which we call Spavin.

If the process extends, we find the connective tissues (ligaments, etc.) around the joint also become inflamed, and earthy salts are deposited in them, so that ultimately the small bones are cemented together, and a true synostosis formed.

Ultimately, the synovial membrane of the joint may undergo changes. Papillæ grow from it into the joint, which may vary in size; some may be connective tissue, others changed into cartilage, and others to bone.

Thus we see that the process commences in the joint, and extends to the tissues outside, until the shape and form of the joint is altered; hence, the term *Arthritis Deformans* is applied to this disease.

Professor Williams says: "The inflammation of the bones (Ostitis) originates in the cancellated structure of their interior, whereby an exudation is thrown out between them and their

cartilage, preventing the nutrition of the latter, whereby it ulcerates and is removed, leaving the exposed surface of the bones in contact with each other, and their cancellated structures in apposition, thus enabling their vessels to communicate with each other. Concomitant with the destructive process going on in the interior of the bones, an exudate is formed upon their periosteal surface, extending from one diseased bone to another, binding them together by a band of lymph, ultimately converted into bone, which locks them firmly together and prevents further motion. In old horses the process of ankylosis is limited to the periosteal surfaces, whilst destructive action still proceeds upon the articular ones ; whereas, in young and middle-aged horses, lymph is thrown out between the ulcerated surfaces of bone, which is organised into true osseous matter, making the process of ankylosis complete at all points." And he goes on to say : "We may now understand why the external deposit is not the cause, but the result, of the disease, and why its presence is not always accompanied by lameness."

Dieckerhoff, when upholding his theory that Spavin commences in the bursa, under the internal insertion branch of the muscular portion of the flexor metatarsi, says, "The membrane lining the bursa first becomes reddened, and secretes a serous fluid (not found in the normal bursa), infiltrated with cells, causing a swelling or bursal enlargement — *Serous Spavin*. Plastic lymph is then formed, and the two sides of the bursa become united and indurated, at which stage the process may cease, when we have obliteration of the bursa and the formation of a *Fibrous Spavin*." If the process attacks the superior part of the bursa, it may become united to the capsule of the tibioastragalean joint, to which, at this part, the bursa is closely related.

The inflammation must be very slight to abate at this point (the bursa) ; therefore, the rule is for it to extend to the underlying tissues (ligaments), causing them to lose their elasticity, and ultimately they may become ossified (parosteal ossification). The inflammation may extend deeper to the periosteum of the bone, which membrane, if inflamed, has a tendency to produce new formations of bone. In the first place, they are not dense

(osteophytes); they then harden, forming *exostoses*, and these separate exostoses become united together by bone, forming a general ossific mass (hyperostosis), but a compact bony mass is never formed.

In this way, then, the small bones of the hock are united together (supra-cartilaginous synostosis).

This irritation going on outside the joint capsule often sets up inflammation in the synovial membrane (synovitis), producing increased secretion, thickening, and even exudation of pus cells into the joint capsule, although this is rare even in traumatic Spavin.

From the synovial membrane the inflammation may extend to the articular cartilage, which changes to a bluish colour, becomes swollen, and presents a velvety appearance on its free surface. The cartilage cells begin to multiply, producing cloudiness, and sometimes warty-like growths are formed, although rarely. Portions of the cartilage become destroyed, giving it a worm-eaten appearance, and ultimately the lamina terminalis of the bone becomes exposed in places—rarely is the whole cartilage destroyed—and the roughened free surfaces of the bones come into contact with each other, producing rarefying Ostitis, and complete ossification (synostosis vera) takes place between them. This union is most common between the two cuneiform bones, but not often between the metacarpal and cuneiform, and less frequently between the superior surface of the cuneiform magnum and astragalus. At other times, the free surfaces of the exposed bones become hardened (condensed Ostitis), and polish by the friction on one another.

Complications.—The inflammation may extend to the true hock-joint, causing at first increased secretion of synovia with exudation of serum, followed by a fibrous exudate, and ultimately thickening, shrinking, and induration of the capsule. The papillæ on the synovial membrane are enlarged (even to the size of peas), and the secretion is thick, tenacious, and lumpy, which undoubtedly produces irritation to the cartilage, followed by warty growths (enchondroses) and ulceration of the cartilage.

Symptoms.—Spavin is usually (but not at all times, nor in all

cases) accompanied with *lameness*, which varies in degree from simple stiffness to absolute halting or hopping. Lameness is not seen in all paces. Sometimes a spavined horse will walk sound, but be very lame when trotting. Lameness is usually well seen when the animal is "put over" from side to side in the stall ; it passes from the sound to the diseased side fairly well, but when passing from the diseased to the sound side the animal limps and catches the foot up as soon as possible. The same is frequently noticed when turning a horse in hand ("it cocks the hock.") Spavin lameness not only varies in degree (owing to the intensity of inflammation present), but the action of the hock also varies according to the extent and position of the changes that have taken place. In the stable the animal may place the foot normally on the ground ; at others the hock will be continually flexed, the hip lowered, the foot placed forward, and the toe only touching the ground. When the horse is trotted, the hock may be flexed strongly and quickly when the limb is off the ground, and the hip raised to a considerable height when the limb is on the ground ; or the hock may be bent very little indeed, the limb being carried stifly, and even dragged along the ground, so as to wear the toe of the hoof away. Again, the foot may be advanced well forward before it is placed on the ground ; whereas, at others, it may be placed on the ground very little in front of the other foot.

Lameness is not always present : for instance, it may be intense when the horse is first brought out of the stable, but after it has been moving for some time, the lameness is scarcely perceptible ; but if the animal is allowed to rest for an hour the lameness returns. The lameness is usually worse after severe exercise, or a hard day's work.

The *temperature* of the hock may be increased.

Pain is sometimes evinced upon pressure on the inner side of the joint.

Swelling may take place, as Schütz points out : Firstly, from the edges of the articular cartilages swelling ; secondly, from swelling of the synovial membrane ; thirdly, to an increased secretion of the fluid in the joint capsule ; and also, as Dieckerhoff says, from enlargement of the bursa on the inner side of the hock.

The enlargement is, however, usually due to a new formation of bone (exostosis), which may vary in size from a slight roughness on or between the small cuneiform bones, to a large "knot," or "jack," the size of a hen's egg, or more, involving all the bones on the inner side of the hock-joint. The position of this bony enlargement may vary, being "high" or "low," "forward" or "backward."

Crackling and crepitation may sometimes be heard when the joint is moved (Schütz).

The muscles of the haunch may be wasted if the lameness has lasted long.

Theory of Spavin Lameness.—Various opinions have been given from time to time respecting the actual cause of pain in Spavin.

1. Some (Boerhaave, etc.) have said the pain is due to distension of the periosteum by the exostosis ; but others (Dieckerhoff, etc.) think that when these growths form, the thin, delicate periosteum accommodates itself to the enlargement.

2. To the spicular-like exostoses rubbing against the tendons and ligaments ; but it is proved that the intervening spaces of these are filled with connective tissue, and, moreover, the tendons which pass over them are quite smooth, or completely attached to the new bone (Dieckerhoff).

3. To *tension of the tendons and ligaments* from the pressure of the new growth under them ; but opposed to this is the fact, that when these are pressed or raised no pain results (Hering).

4. That the disease of the cartilage and bone, producing a rough surface, which, coming in contact with each other, causes pain (Havemann). However, we often have disease of the cartilages without lameness, and the friction of roughened bones upon each other soon makes them smooth and polished, and glide easily over one another without pain. Also, lameness may be present without the articular surfaces being affected (Hering).

(*To be continued.*)

SHORT NOTES ON TWO CASES OF CONTAGIOUS PUSTULAR STOMATITIS IN HORSES AND ON THE COMMUNICATION OF THIS DISEASE TO TWO MEN.

BY JAMES BRODIE GRESSWELL, M.R.C.V.S., LOUTH.

IN bringing before the notice of the readers of *THE VETERINARY JOURNAL* the subject of Contagious Pustular Stomatitis, as illustrated by four cases, two in horses and two in men, I wish to express, in the first place, my opinion that when carefully studied this disease seems to have no more special relationship with Equine Variola or other exanthems, than, indeed, the various specific fevers have one with another.

In short, I am led to regard Contagious Pustular Stomatitis as a distinct eruptive fever, characterised by a local eruption, coupled with febrile manifestations and sore throat, and this opinion I have arrived at more especially from a careful scrutiny of the cases now under consideration.

On the 27th of May I was asked to see a seven-year-old cart-horse, which was slavering profusely. On examination of the mouth, the whole of the epithelium underneath the tongue and on the inside of the cheeks was found to have peeled off in flakes, and the raw surface left was studded copiously with little rounded ulcers, each of about two-thirds the size of a threepenny-piece. Many of the ulcers became confluent on the following day, forming large ulcerated surfaces. There was no eruption in any other part of the body excepting one solitary ulcer on the nose, about half-an-inch from the mouth. This soon healed. The mucous membrane of the mouth was hot, dry, and red, and was covered with a tenacious, sticky secretion.

The pulse was sixty per minute and regular, the respirations were not accelerated, and the temperature did not reach beyond 102.5° . The animal masticated and swallowed with difficulty, but there was no loss of appetite. Saliva was passed out in great quantity; there was no discharge from the nostrils, but the Schneiderian membrane was of rosy reddish hue, and the submaxillary glands were slightly enlarged, but were not adherent to the skin or to the subjacent bone. About the seventh

day from the commencement of the disease, the ulcers began to heal, and the horse made a complete recovery in a fortnight.

The shepherd on the farm who had the horse under his charge, had given an aloes ball to the animal as soon as he noticed him ailing, and in so doing received a slight scratch on the second and third finger of the right hand. His right arm began to swell about ten days afterwards, but he went to work nevertheless. The swelling then became more severe, the patient took to his bed, and pustules formed and burst about the twelfth day after the arm first began to swell. There were then five ulcerated patches on the back of the wrist as large as sixpenny-pieces, but oval in shape. The man made a gradual recovery, but he had very high fever, profuse salivation, and dry, parched mouth, and his throat was very sore. There was no rash in any other part of his body. Several days after the first horse was attacked, another animal, a four-year-old horse, was noticed to be ailing, and numerous ulcerated patches were found on the inside of the cheeks ; the whole of the tongue was red and raw, and there was profuse salivation ; the appetite was not much impaired, but deglutition and mastication were difficult. The other symptoms were the same as in the former case, but the submaxillary glands were not affected. Little depressed cicatrices remained on the place of the ulcers, but they gradually disappeared. The nostrils were not affected, but the Schneiderian was of a rosy hue. The foreman who had attended this case became inoculated from his charge, and about ten days after receiving a slight abrasion on the finger, his arm began to swell, and then ulcers were formed on the back of the hand and on the wrist. The disease proved milder in this case than in that of the shepherd, but there was more affection of the mouth and more salivation than in his case.

THE INFLUENCE OF HEREDITY AND CONTAGION ON THE PROPAGATION OF TUBERCULOSIS.

(Continued from page 258, vol. xix.)

The morbigenous principle appears, according to this information, to have already invaded the secretive organs at a period

when no macroscopical lesion was present to indicate the existence of any alteration in them. Therefore it would appear from this fact, that where the means of investigation with which science has provided us are at fault, we cannot expect the practitioner to establish a precise and clear distinction in the special cases to which we refer, and in all of them, with irrefutable arguments to support him, to define the limit between that which may and that which may not be consumed.

The difficulties to be encountered when we are called upon to give an opinion with regard to the flesh of a tuberculous animal are undeniable, and are such as to be scarcely evaded ; it therefore follows that the confiscation of meat always offers, in this respect, *desiderata* which can scarcely, or at most only incompletely, be obtained.

From all that has been stated, it may be concluded that, in itself, the confiscation of phthisical cattle, no more than the recommendation or order to eat only cooked flesh, will preserve us in a complete manner from the danger of infection with which we are threatened by tuberculous meat. To attain the desired end, this confiscation should be reinforced by auxiliary arrangements. In a word, mitigated measures are not efficacious, and severe measures are not strictly observed.

The circumstances which may preserve mankind from the harmful action of the *milk*, are, happily, more easy to realise than those which should completely guarantee us from the danger likely to be incurred from consuming the flesh of tuberculous animals. It is, nevertheless, true that we do not know the special character which would allow us to distinguish, either by the naked eye, or by the aid of chemical or ordinary physical analysis, healthy from infected milk, while, on the other hand, obligatory search for the tubercle *Bacillus* in all milk would be an excessive and impracticable measure. Besides, the compulsory sanitary control of all milch cattle by veterinary surgeons would be not only very difficult to ensure, but it would be also very vexatious and costly, and, after all, would not afford absolute security.

To prohibit the sale of the milk of cows presenting symptoms

of tubercular Phthisis would be without result, the milk not being subjected to sufficient control, so far as its origin is concerned.

The recommendation not to use the milk until it has been boiled has more likelihood of being observed, and is more certain of success than that relative to cooking the flesh. Milk is a fluid which heats uniformly, so that we may admit that in boiled milk every specific principle of Tuberculosis, as well as the virus, is destroyed. In addition, the milk from different animals is usually mixed, so that the activity of the virus in virulent milk is in this way attenuated, by its commingling with healthy milk. This attenuation may be so great that the mixture is altogether inoffensive. Lastly, it should be recognised that the milk of every tuberculous cow is not fatally charged with the contagious principle of Tuberculosis; although we cannot deny that the milk of such cattle should be very infective if the disease is localised in the udder.

It results from the observations collected up to the present time, and from a consideration of the natural condition of things, that the dairies which supply milk warm from the cow, to be given directly to children, offer the greatest danger to the public health. In these establishments they do not rear the cows they employ, but buy them, always endeavouring to obtain those which yield most milk, and these they milk excessively. From these circumstances, it very often happens that the cows in these places are already tuberculous on their arrival, and it is the milk of such animals which is consumed in the manner alluded to—either warm or cold—by persons who, from their constitution, are predisposed to the influence of the infecting agent.

The danger we refer to has been recognised for a long time, and attempts have been made to avert it by different means. In certain continental towns such establishments are only allowed on the understanding that the owners will submit them to a special surveillance exercised by the local police, over the production of milk. In other places, the local administration prescribes, without other preliminary, the control of existing dairies; while in others, finally, the necessary conditions for the production and sale of milk suited for infants and sick persons, are alone prescribed, and the principles according to which the

control of the milk supply should be effected, in order that it may combine the conditions required in establishments for the treatment of patients by milk, are indicated. In the latter localities the authorities do not care whether or not their recommendations and indications are attended to, but they entrust the customs servants with an official recommendation to be given to the proprietors of those establishments who will submit to the authoritative instruction.

The following is a form of contract which we (Lydtin) have drawn up for the administration of the town of Karlsruhe; it embodies the principal precautions to be adopted with regard to milch cows in dairies. "Contract between Mr. . . . of the one part, and the Local Board of Health of represented by the magistrate of the other part. The Local Board of Health hereby controls the production and the sale of milk in Mr. . . . 's dairy. Mr. S. . . . on his part undertakes:—

"1. Only to provide milch cows of breeds which usually furnish good milk; more especially to employ cows which have had two to six calves, and not to keep older cows; to exclude all cows which lose condition, have dull coats, cough or nasal discharge, have swellings about the neck, prepectoral region, or between the thighs, lower part of chest or abdomen—tumours which are due to an alteration in the lymphatic glands or subcutaneous or dropsical infiltration; finally, not to have as milch cows those which exhibit symptoms of Nymphomania;

"2. To have the temperature of the milch cows taken in the rectum every day, so as to ascertain their state of health; to remove, on the advice of the veterinary surgeon, every milch cow whose temperature is above the normal standard (38.5° to 39° Cent.), or which presents any other symptom of disease, and not to sell the milk of such animals without the permission of the veterinary surgeon; not to sell for consumption the milk of newly-calved cows until fifteen days after calving, and provided the animals remain healthy during that time;

"3. The cow-sheds to be kept well-ventilated and clean, and neither pigs, dogs, nor fowls to be kept in them;

"4. To feed the cows conformably to the indications furnished by the Local Board of Health, excluding from their diet the

residue of breweries, distilleries (grains), and kitchens, the leaves of root-crops, August turnips, garden and field weeds, spoiled hay, and generally all damaged alimentary matters; to give spring water to drink; to cleanse from time to time by means of hot water or a solution of potash all the utensils out of which the cows receive their food or drink; not to feed with green forage except with the sanction of the Local Board of Health;

“5. To have written on a placard in a conspicuous part of the shed, the ration allowed by the Board for the milch cows;

“6. Not to allow any sick person, or one who is recovering from an infectious disease, to interfere in any way with the milking of the cows, or in collecting, preserving, conveying, or selling the milk;

“7. To keep all the vessels which hold the milk scrupulously clean;

“8. Not to milk the cows, generally, except in the morning and evening, to measure the milk at each period, and enter the quantity on a card in the shed or dairy, and to inscribe it in a register *ad hoc*;

“9. To mix the milk obtained from the healthy cows, find the specific weight of this mixture, and to register this also;

“10. To cool rapidly all the milk which is not to be at once used naturally, or for butter or cheese, using a refrigerating machine; not to add anything foreign to it;

“11. In the production of milk from goats to apply the same procedure;

“12. To permit access to all parts of the establishment concerned in milk production, of every member of the Board of Health.

“Mr. . . . engages, in addition, to conform to any special measures that the Board may consider necessary to prescribe.”

We do not know of a more efficacious means than that of the control of the health of the cows, and the collection, preservation, and sale of the milk. It may be added, however, that this control, which gives good results in certain cases, leaves something to be desired, with regard to its application, in the generality of dairies.

A minute inquiry into the ways and means of preserving

mankind from the danger with which they are threatened by the employment of the milk and flesh of tuberculous cows, brings us to the conclusion that if the inspection of cattle intended for slaughter and those kept for milk production, even combined with that of the meat and milk offered for sale, does not afford security, in relation to the expense it involves, yet it cannot be ignored that it constitutes a useful, nay, a necessary measure.

The utility of this inspection of meat and control over the milk supply in countries where they are in force, is so great that the necessity for maintaining and improving these preventive measures cannot be doubted. But, nevertheless, an analysis of the facts and a consideration of the results obtained show, that this inspection and control are not sufficient to afford a sufficient guarantee to mankind against the real and undeniable danger of the possible transmission of Tuberculosis through the medium of the flesh and milk of phthisical cows ; neither does this control suffice to preserve the public wealth from the damage it sustains through this malady. We should therefore endeavour to find other means which may afford more efficient protection from the danger ; and it is this search for a real preservative which imposes a heavy and urgent task on the veterinary profession.

Since Villemin's discovery, veterinary surgeons have found themselves in a very difficult position, they being, as it were, between Scylla and Charybdis : urged, on the one hand, to completely exclude from public consumption the flesh of tuberculous cattle, which the progress of science has shown to be infective ; and solicited, on the other hand, not to sanction so radical a measure, as the instances in which human health has suffered from its use must necessarily be very rare, and the danger proposed to be averted being yet but little appreciated by the great majority of the public, such a rigorous measure would not be approved. In dealing with such a question, we must reckon seriously with public opinion, as the measures necessary in this instance will gravely affect the interests of the butchers, as well as the breeders, feeders, and other owners of stock, and will demand considerable expenditure to ensure efficacious inspection of slaughter-houses and the sale of meat.

(To be continued.)

Editorial.

THE ARMY VETERINARY DEPARTMENT.

THE rapidly increasing importance of the veterinary profession is, perhaps, nowhere so marked as in its relations to the army service and to warfare in the field. The advancement which has been made in the position of army veterinary surgeons, and in the estimation in which they are held by military authorities, striking as it is for its rapidity, is largely due, not only to the higher standard of general and professional knowledge which they must possess, but also to the zeal and intelligence with which they employ that knowledge, and the earnestness and fidelity they display in the performance of their duties. They have won their position by their own efforts, and under what might be deemed most unfavourable circumstances; for there can be no doubt that, for very many years, they were looked upon unfavourably and jealously by those who had it in their power to keep them under, and to prevent their enjoying rights and privileges open to others who had no better claim to them. It must be confessed that the efforts required to attain what has been so well achieved, have neither been light nor few, and a large amount of sustained courage has been required to meet and overcome the obstacles thrown in their way.

Before the Crimean War the number of army veterinary surgeons was very small, and their services were reckoned of little moment. Since that time, and more especially within the last few years, their number has been increased nearly tenfold, while with regard to their position they stand on an equal footing with other officers, all invidious distinctions having been swept away. With regard to emoluments a great improvement has also taken place, the pay and allowances of the veterinary surgeons now joining the army being three times more than the remuneration allowed a quarter of a century ago, the pay and allowances, as well as the pension, of the higher grades being proportionately increased. With this increase in the pay and position of the army veterinary surgeon, however, his responsibilities have correspondingly increased, and the skill and varied requirements which he is presumed to possess are more severely tested. In recent times it may be said we have had a constant succession of wars, in which the Veterinary Department has been called upon to play a more or less important part; and as these wars have unfortunately been carried on in distant and barbarous countries, where great numbers of animals of different kinds have had to be employed, the knowledge, tact, and training of the veterinary officers have been severely tried, while at the same time they had to undergo the hardships and effects of climate to which their brother officers had to submit.

The recent campaigns in the Soudan—on the Red Sea and the banks of the Nile—have demonstrated what these hardships really are; more than one-half of the large number of veterinary surgeons engaged have suffered from sickness or been invalided. It has been imagined, by those who know but little of the subject, that the army veterinary surgeon leads a

comparatively idle life, and devotes nearly all his time to recreation and frivolity; this is assuredly not the case. Even in peace time, if he performs his duty as he ought to do, and keeps himself abreast of the medical science of the day, as well as making himself acquainted with general literature and current events—which all who mix with their fellow-men should do—his whole time is pretty well occupied; besides, he has to prepare himself to undergo examinations for promotion at stated periods, which require constant application and close observation. But it is in war that his abilities and fortitude are tried to the very utmost, and recent experience has shown that few officers in the field have more anxious and exacting duties to perform than our army colleagues. So highly are the services of veterinary surgeons now valued in the field, that among the first inquiries of a general who is about to assume the command of troops on active service, is one as to the number of veterinary officers he is to have, and his pressing desire to secure, if possible, a large surplus of them. On the manner in which they discharge their duties the success of a campaign may largely depend, and in the future they will have to play a more prominent part than they have perhaps had imposed upon them in the past. In addition to the animals to which they have been accustomed at home—as the horse, ox, and ass—they usually have in their charge elephants, camels, and sometimes buffaloes, which require special management and medical knowledge; and to carry on their duties satisfactorily demands an amount of resource, self-possession, and tact rarely needed in civil life. In proportion as these qualities are manifested, so does the Department, through its individual members, rise in value and esteem, while the individuals themselves receive their well-earned reward. It must not be forgotten that the peace training of a veterinary officer is with the view to the special application of his professional knowledge to meet the demands of war, and to this all his attention should be directed. How to maintain animals in health and efficiency in the field, or to restore them quickly to usefulness when sick or injured, is the object to which his attention must be chiefly directed, and it is one which demands a wide and exact degree of knowledge and experience. In acquiring this, and in making it known, he is advancing science in one or more of its branches, and the history of the Veterinary Department of the British army abundantly shows that the opportunities our colleagues enjoy for study and observation have been turned to good account, for the benefit, not only of veterinary, but also that of human medicine in several of its branches. The Department is yet far from having reached its zenith, and the care exercised in selecting candidates, as well as the spirit which animates these when they have gained admission to its ranks, ensures further rapid progress and increased approbation.

As an integral part of the British army, the Department now enjoys a position which at one time could scarcely be hoped for, and its future, we trust, will be as bright and successful as its past had been discouraging, and it may be heartily congratulated on the result of the ordeal it has had to pass through.

HORSE-POX IN A COLT.

IN the *Revue Vétérinaire* for March, 1884, M. Labat describes a case of Equine Variola in a colt two and a half years old, the peculiarity of which was the development of the characteristic pustules on the conjunctiva. The exanthem appeared on the conjunctiva of the left eye, chiefly towards the margins of the eyelids and the canthi, in the form of granules, varying in size from a pinhead to that of a small lentil, and arranged in little groups. Coincidentally, there was intense conjunctivitis, superficial keratitis, and evidence of great pain in the eye. The nature of the ocular eruption was revealed by a concomitant eruption on the nose, around the left nostril, and on the upper lip. In order to demonstrate that the ophthalmia was due to the eruption of Horse-pox on the conjunctiva, a heifer was inoculated with the muco-purulent discharge obtained from the canthus of the inflamed eye, with the result that at the seat of inoculation there were developed and well-defined Cow-pox pustules.

BURSÆ MUCOSÆ.

BY PROFESSOR F. EICHBAUM, OF GIESSEN.

(Continued from p. 106, vol. xx.)

It is very instructive to treat this tissue with gold-chloride, for we then learn that the cells are more or less separated from each other by a large quantity of finely-striped intercellular substance, whereas in endothelial tissue the cells lie close together.

At this zone, we are dealing with a transition tissue from endothelial cells to cartilage cells, as has been observed by Tillmanns* and Colonnatti† on the internal surface of the tendon of the M. extensor cruris quadriceps of man, and by Bohm‡ on the edges of articular cartilages.

The transition, as we have seen, takes place by gradually pushing the cells asunder; they then change their form, the fine granular protoplasm becoming homogeneous and hyaline; at the same time they assume a strongly refractive dark contour, which distinctly separates and marks them from the surrounding tissue. The whole of the posterior surface of the sesamoid bones are covered with fibro-cartilage, and the transition of the synovialis from the edge of the cartilage to the endothelial membranous portion can be easily traced. On examining the passage of the synovial wall to the ring-form tendinous plate, we find the endothelial lining ceases at the commencement of the ring, and the cartilage cells commence as soon as we get level with the superior border of the sesamoid bones. The same is the case on the part which is in apposition with the perforans and that covering the tendon itself, as well as the anterior part of the perforatus tendon where it plays over the sesamoids. Even on microscopically examining these parts, a duller appearance—resembling cartilage—is recognised, and the synovialis, which at other parts has a subsynovial connective tissue, unites to the cartilage and is lost as a distinct membrane. A similar appearance is seen when the sheath and tendon of the perforans tendon of the hind limb is examined. Where it plays over the calcis it presents a cartilaginous covering, whilst the other parts of the sheath of the tendon, as well as the mesotenon, possess a continuous layer of epithelial cells.

* Archiv für mikroskop Anatomie, 1874, s. 418.

† l. c.

‡ l. c., s. 10.

The foregoing shows that the sheaths, as well as the surface of the tendon of the extremities, as a rule, possess an endothelial lining, and that only those places which have—even macroscopically—a cartilaginous appearance and continually brought into friction, are exempt.

It has already been pointed out at the commencement of this paper, that the structure of these organs differ under different conditions of development; *e.g.*, those we have just been considering have an intra-uterine development, whilst the subcutaneous bursæ only arise *post-partum*. This difference in the time of the appearance produces—as will be shown below—differences in their structure.

The following are the chief subtendinous bursæ that have been examined during these researches:—Bursa intertubercularis, Bursa coraco-brachialis, Bursa musc. infraspinati, B. musc. anconai longi (Caput magnum), Bursa calcanei, the mucous bursa under the tendons of the stifle-joint, the bursa under the median insertion branch of the Flexor metatarsi, the bursa under the tendon of the Extensor pedis at the anterior part of the fetlock-joint, the Bursa vaginalis under the tendon of the perforatus at the calcis, the Bursa synovialis under the origin tendon of the perforans at the elbow-joint, and, finally, the Bursa synovialis under the Extensor pedis at the stifle-joint. Speaking generally, we may say all typical bursæ possess the same structure as we described above for the sheaths of tendons.

No differences can be detected either with regard to the arrangement of the connective tissue or the size of the endothelial cells. The mucous bursæ often possess cartilaginous places in their endothelial layer, similar to that in the last tendon sheath we described, and the transition from the one part to the other appears the same in both. Those Bursæ mucosæ which do not possess any cartilaginous places in them, are the Bursa coraco-brachialis, B. anconeï longi, B. glutei medii (Gluteus maximus), B. calcanea, the bursa under the tendons of the stifle, the bursa under the fan-like insertion branch of the M. tibialis anticus, and the bursa on the anterior surface of the fetlock. On the other hand, we find cartilaginous tissue inserted in the B. vaginalis of the perforatus of the hind limb, *viz.*, on that part which lies on the Tuberositas calcanei, as well as that covering the tendon itself; the B. intertubercularis on the anterior part of the head of the humerus and on the Flexor brachii, the lateral walls of the B. musc. infraspinati and on the above-mentioned Bursæ synoviales when they unite to the tendon as it passes over the borders of joints. They serve to protect the parts during friction, and possess a dull, glistening, cartilaginous appearance. The synovial membrane cannot be recognised at these places.

The subcutaneous mucous bursæ are quite different from these. We have examined those on the inferior spinous process of the ilium, olecranon, and calcis.

Preparations treated with a solution of silver *in situ*, present a uniformly brown-coloured inner surface, with numerous clear, stellate spaces of various sizes and shapes, having processes which unite with each other; altogether the preparation presents a very similar appearance to the cornea treated in the same manner. Each of these spaces contains a large oval or round nucleus. This appearance is frequently broken by more or less extensive places, where the brown intermediate substance is reduced to small winding and frequently nodulated lines or borders, surrounding white polygonal or spindle-shaped fields with large oblong nuclei, plainly showing the presence of an endothelial membrane. These cells vary in their long diameter from 0.030-0.036-0.045 mm., thus they are three or four times larger than the endothelial cells described above. They seem to run in rows through the specimen, and often come in close contact with the clear star-shaped spaces of the brown ground-substance. These places possess a very striking

resemblance to the lymphatic tissue described by Recklinghausen in Stricker's book, "On the Study of Tissues" (*Gewebelehre*), also with preparations from the Centrum tendinum of the diaphragm after the endothelium is mechanically removed; and to my mind there is no doubt that in these mucous bursæ we are dealing with lymphatic tissue; and those authors who have described these bursæ as possessing a partial lining of endothelial cells have confounded these lymphatic endothelial cells with the endothelial lining found on synovial membranes. We have always found the same structure in all the bursæ that we have examined, and have never seen a continuous layer of cells as is the case on synovial membranes. If the silver layer is removed by hyposulphite of soda, a few round or oval nuclei are seen on the surface of the preparation. The same is the case if hæmatoxylin without the silver is used. The internal boundary walls of these bursæ are formed of fibrillated tissue with numerous spindle-formed nuclei and elastic fibres, with fat distributed here and there. From the above we assume that there is no endothelial lining to the subcutaneous bursæ, and that they are simple spaces or large *lacunæ* in the subcutaneous tissue, due to laceration or tearing from the movement of the skin. Thus we may say that these structures have an analogous origin to the sheaths of tendons, serous sacs, and bursæ generally, which arise from a mechanical splitting of the middle germinal layer, although the time of their formation and structure are different. If these spaces are formed during intra-uterine life, we usually find them lined by a complete endothelium; if they are formed after birth a cellular lining does not appear, but the walls are formed by a somewhat compact connected tissue. We must, however, add—as does His,* speaking generally, and Lowe,† when speaking of spaces in inter-parenchymatous connective tissue—that the structure of mucous bursæ change with age; for instance, subcutaneous bursæ formed in early youth can produce a partial endothelial lining, although it may not be complete. This is owing to the greater productivity of the young body. We have, however, as stated before, never seen these subcutaneous bursæ so lined in any of the numerous specimens we have examined; therefore, we hold that these spaces in the subcutaneous connective tissue may be distinguished from serous cavities by their histology, but not from their mode of origin and development. The fluid they contain is lymph, which flows into them from the lymph spaces in the neighbouring connective tissue.

After the results of our researches the question arises, where the tendon sheaths and typical mucous bursæ that possess an epithelial lining should be placed. This at present is difficult to answer. It cannot, however, be denied that, if these membranes are compared with serous membranes, a number of weighty facts present themselves to warrant us in thinking that the synovial membranes belong to the serous class. In both we find fibrillated connective tissue and elastic fibres, with a stratum of a specific nature on it, viz., a single layer of endothelial cells. These so resemble each other in each case that no differences can be detected, and no distinctions can therefore be seen whereby to separate them. When considering this question, there is one fact worth remembering, and that is, that the endothelial layer is sometimes broken in bursæ and sheaths, viz., when fibro-cartilage is inserted, a circumstance which never takes place in serous membranes. Even here we can with justice object to this as a distinction between the two structures, because the cartilage is not present at all ages; it only forms after the muscles and tendons are used. Todd and Bowman,‡ and after

* l. c. S. 25.

† "Zur Kenntniss der Bindegewebe, *Arch. f. Anat. u. Entwicklungsgesch.*" Von W. His und W. Braune. 1878.

‡ "Physiolog. Anatomy," 1847. I., p. 90.

them Reichert,* showed that these cartilages have an endothelial covering when they are first formed. Our own researches have demonstrated that in the fully-developed, although unborn fœtus, as well as in newly-born foals, the cartilages of the Bursa intertubercularis, and the B. musc. infraspinati, and the tendon sheath of the perforans at the posterior part of the fetlock-joint, are absent at those places where they are present in older animals; and at this age they are covered by a continuous layer of epithelium.

Again, the fact that both serous and synovial membranes possess true endothelial papillæ goes a great way to prove their similarity, as does also the resemblance of their respective pathological changes.

Finally, the history of development of the two structures, given above, is sufficient to identify a connection between them.

Although we find many important common facts respecting their genesis and structure, we can, on the other hand, detect differences; for instance, the fluid contents of tendon sheaths and mucous bursæ contains a quantity of mucin and albumin. However, our knowledge of the chemical composition and formation of synovia is so deficient and unfinished, that we cannot positively state the conditions under which it appears, or why it contains mucin and so large a quantity of albumin, especially in the above structures, where it is normally found in such small quantities.

Frerich† and Tillmanns (l. c.) say that synovia is a transudation from the neighbouring vessels, the mucin being obtained by a degeneration of the endothelial cells lining the capsule. Huter‡ says it is the nutritive fluid of the body percolating through the connective tissue cells, and obtains its mucin from them in doing so. Finally, Soubbotine (l. c., p. 563) holds that it is a product from the cells themselves—*i.e.*, the membrane is a secreting tissue. Pflüger§ also held the same opinion with regard to serous membranes when he was studying them from another point of view.

After the foregoing general description of the appearance and structure of the sheaths of tendons and mucous bursæ, we will now give a short detailed description of these organs as they are found in the various regions of the horse's body.

1. The "Bursæ mucosæ" and "Vaginæ tendinum synoviales" of the

HEAD.

(a) *Subcutaneous Bursæ.*

These are relatively seldom found on the head; they have, however, been seen several times on the crest of the occiput (Linea semicircularis superior h.s.), external occipital protuberance (Fleming), viz., on that part where it joins the median line (antero-posterior ridge) (Fleming), on the anterior surface of the bone, also at the angle of the inferior maxilla. They have been once seen (in an old horse used for anatomical purposes) on the zygomatic arch, viz., at the place where the zygomatic process of the temporal unites to the orbital process of the frontal bone.

(b) *Subtendinous Bursæ.*

Bursa mucosa over the Protuberantia occipitis externa and under the origin of the upper part of the common muscle of the ear (*M. communis auris*) (temporo-auricularis externus of Fleming). It is usually divided into two halves by a septum, each half being oval-shaped, and from 2.0 to 2.5 ctm. in length. In all cases when this bursa was present the crest of the occiput was very prominent.

* "Archiv f. Anat.," 1849. Jaresber. S. 16.

† Wagner's "Handwörterbuch der Physiologie." III. Bd. 1, abth.

‡ "Klinik der Gelenkkrankheiten."

§ Pflüger, "Ueber die Eierstöcke der Säugethiere und des Menschen," 1863. S. 33-35.

Tendon sheath of the M. levator labii sup. propr. (Supermaxillo-labialis) (Fleming) is not a completely-developed sheath, because no sharply-defined space can be detected between it and the surrounding connective tissue, but it forms loose cellular meshes of various size around the tendons as soon as they leave the muscles on either side (*i.e.*, about the level of the angle formed by the Oss. nasal. and the Proc. nasalis of the Oss. intermaxilaria) to the point where they unite to each other.

Bursæ vaginalis on the M. stylo-hyoideus (for the passage of the intermediate tendon of the digastricus) is constantly present. It is a very delicate, thin, synovial membrane, and passes from the border of the sheath-like portion of this muscle on to the tendon of the M. digastricus, to which it is united.

Bursæ mucosæ on the point of the spur process (anterior appendix) of the Os. hyoideum was found in one instance. It was oval in form, length 2 ctm., and situated about 1 ctm. from the point of the process in the median line, between the superior surface of the M. genio-hyoidei and the tendons of the genio-glossi muscles.

Bursæ mucosæ on the lateral (outside) surface of the Hamulus ossis pterygoidei is constantly present. It is situated between the concave lateral surface of the hamular process of the pterygoid bone and the medial surface of the tendon of the Tensor veli palatini (*Peristaphyleus externus*) (Fleming), on the borders of which it is inserted; it is also united to the transverse ligament which holds the tendon in its position.

Bursæ mucosæ between the pulley and M. obliquus superior of the eye. It is about the size of a bean, and frequently covers both sides of the tendon like a sheath.

II.—ON THE NECK.

Bursa mucosa under the origin of the Ligamentum nuchæ and above the capsular ligament and superior surface of the atlas and part of the M. recti capitis postic. minor (small posterior straight muscle) (Fleming). It is bounded laterally by the Rect. cap. post. maj. muscles, and reaches anteriorly as far as the insertion of the Lig. nuchæ to the occiput. It is very frequently present, and its long diameter is about 3 to 5 ctm., and in one case 10 ctm.

Bursa mucosa under the lamellar portion of the lig. and about level with the second cervical vertebra (dentata). This not unfrequent bursa often reaches a large size (even the size of an apple), and is situated between the two branches which the superior spinous process (or crest) of the dentata divides into, viz., where the two sides of the funicular portion are inserted on the one hand, and the lamella on the other. In many cases the bursa is placed in the space formed by the two halves of the funicular portion of the ligament at this part, to a depth of from 1.5 to 1.0 ctm. The bursa is bounded on the outside by the MM. complexi, with whose internal (medial) surfaces it is united by loose connective tissue.

Bursæ mucosæ between the transverse processes of the third, fourth, fifth, and sixth cervical vertebræ and the faciculi of the muscle covering them (M. complexus major). They vary from the size of a hazel to a walnut, and are frequently present.

Bursa mucosa on the level with the sixth cervical vertebra, between that part of the Scalenus infer. which arises from the transverse process of the first dorsal, to join the rest of the inferior portion of the muscle and fleshy faciculi of the M. longus colli. It was found in one instance.

Bursa mucosa between the inferior surface of the first dorsal vertebra and a tendon of the thoracic portion of the M. longus colli. It was elongated (5 to 6 ctm. long), the posterior part of the bursa was on the level with the neck of the rib-bones (Collum costæ), and its anterior with the transverse processes of the seventh cervical vertebra. Almost constantly present.

Bursa mucosa, elongated in form, under the insertion tendon of the *M. longissimus dorsi* on the seventh cervical vertebra. Very frequently present.

III.—THE BODY (*Trunk*).

(a) *Subcutaneous Bursæ*.

Bursa mucosa above the withers. Frequently found, and usually over the superior spinous processes of the fifth to the seventh dorsal vertebræ. Sometimes this bursa is divided by incomplete septa into several parts.

Bursa mucosa subcut. over the superior spinous processes of the first and second lumbar vertebræ. Frequently seen, and about the size of a walnut.

(*To be continued.*)

THE FELLOWSHIP DEGREE.

AT a meeting of the examiners for the Fellowship degree, held on June 25th and 26th, the following members presented themselves for examination, and were successful in passing: F. W. Wragg, London; W. Wilson, Berkhamstead; W. J. Mulvey, Bishop's Auckland; H. L. Simpson, Windsor; J. F. Simpson, Maidenhead; W. F. Peacock, London; G. G. Mayor, Kirkham; T. Campbell, Kirkcudbright; P. Walsh, Ballina; W. Awde, Stockton-on-Tees; J. G. Cross, Mardol.

THE FITZWYGRAM PRIZES.

THE competition for these prizes took place on 12th May and June, nine candidates entering their names, but only six competing. The examiners were Mr. J. Matthews, Royal Horse Guards; Mr. S. Locke, Manchester; and Mr. A. W. Hill, Sec., R.C.V.S. Mr. J. S. Lloyd (Dick Veterinary College) gained the first prize (£50); Mr. J. Moore (New Veterinary College) second prize (30); and Mr. A. Cawdle (Royal Veterinary College) third prize (£20).

NEW MEMBERS OF THE PROFESSION.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held on the 6th, 7th, and 8th July, 1885, the following students from the Royal Veterinary College were admitted members of the profession:—

Mr. C. W. Marshall	...	...	...	King's Lynn
„ M. G. Byerley	...	...	...	Great Grimsby
„ W. Ascott	...	...	...	Bideford, North Devon
„ W. Collins	...	...	...	Brighton Road, Worthing
„ J. C. Coleman	...	...	...	Camden Town
„ G. Boulton	...	...	...	Wolstanton, Staffordshire
„ G. H. Gibbings	...	...	...	North Tawton, Devon
„ W. Folsetter	...	...	...	Evansville, Indiana, U.S.A.
„ E. Crundall	...	...	...	New York State, U.S.A.
„ J. F. Farrington	...	...	...	Harold's Cross, Dublin

The following students passed their *Second Examination* on the 9th July, 1885 :—

Mr. A. Johns	Mr. T. N. Clarke
„ H. F. Reynolds	„ G. Hurford
„ T. V. Pettifer	* „ W. Stevenson
Mr. J. R. Bathew.	

The following students passed their *First Examination* on the 10th, 11th, 13th, and 14th July, 1885 :—

† Mr. J. A. W. Dollar	† Mr. J. Healy
„ J. E. Allen	* „ L. Mitchell
* „ F. B. Drage	„ J. A. Legg
„ J. Wooding	„ A. Crapp
„ W. Owen	„ J. W. Crowhurst
* „ E. R. McHugh	„ W. A. Clifford
* „ T. E. Barcham	* „ S. Wharam
„ F. B. Ditmas	„ R. Wilson
„ W. W. Goldsmith	„ A. C. Newsom
„ F. Harvey	† „ T. A. T. Hutton
„ S. B. Baker	* „ T. L. Bickford
„ J. A. Worsley	„ W. J. Moran
† „ F. W. Watchorn	„ T. Spencer
* „ A. E. Branch	* „ F. Aulton
* „ H. Hall	„ W. H. Willsher

* Marked thus passed with “Great Credit.”

† Marked thus passed with “Very Great Credit.”

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF COUNCIL HELD JUNE 17th, 1885.

J. ROALFE COX, Esq., President, in the chair.

Present :—The President ; Professors Duguid, Pritchard ; Dr. Fleming ; Messrs. J. F. Simpson, Greaves, J. Harpley, Barford, Wragg, Blakeway, Dray, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of the last meeting were read and confirmed.

Letters regretting their inability to be present at the meeting were announced as having been received from Messrs. Taylor, Cartledge, Woods, Whittle, Cartwright, and Perrins.

The diploma of Mr. Hugh Sim, a holder of the Highland and Agricultural Society's certificate, was signed in the usual manner.

The SECRETARY stated that several letters relating to unregistered practitioners had been received from members of the College.

On the motion of Mr. HARPLEY, seconded by Mr. BLAKEWAY, the letters were referred to the next meeting of the Registration Committee.

Reports of the Examinations.

The reports of the April Examinations held in London, Edinburgh, and Glasgow, were read.

Correspondence.

The SECRETARY read a letter from Mr. Thatcher, the Solicitor to the College, confirming the opinion he had expressed at the last meeting, that it was illegal for the Council at that time to transact any other business than the appointment of officers.

It was ordered that letters from three societies—the Lancashire Veterinary Medical Society, the Scottish Metropolitan Veterinary Medical Society, and the Central Veterinary Medical Society—referring to Fellowships, should stand over for consideration until the next quarterly meeting.

The SECRETARY said a letter had been received from Mrs. Clarke, asking for some assistance from the College on behalf of Mrs. Hannah Bowles. It had been customary for the Secretary to reply to such letters and say that he would put them before the Council, at the same time expressing regret that they were not able to assist. Mr. Bowles was a member of the College, but died many years ago.

Mr. GREAVES said if the matter were left to him he would lay it before the Committee of the Benevolent Society, who could please themselves as to whether or not they would step out of their ordinary course; but Mr. Bowles was not a member of the Society.

Mr. DRAY asked if it was proposed to take any action with regard to Mr. Thatcher's letter.

The PRESIDENT said his impression was that no action should be taken, but he would be pleased to hear any suggestion that might be made on the subject.

Mr. BARFORD supposed that the letter would be entered on the minutes as a guide for future action.

Mr. HARPLEY said it would have to come before the next quarterly meeting.

The subject of the letter was thereupon ordered to stand over till the next quarterly meeting.

The following committees were then appointed :—

Parliamentary Committee.

Professors Brown, Robertson, Pritchard, Duguid; Sir F. Fitzwygram, Dr. Fleming; Messrs. Cartledge, Greaves, Harpley, H. L. Simpson, Barford, and Whittle.

Museum Committee.

Professors Pritchard, Axe, Duguid; Messrs. Dray, Wragg, and J. F. Simpson.

Finance Committee.

Messrs. Cartwright, Dray, Greaves, Harpley, Taylor, Wragg, Whittle, and Blakeway.

House and Building Committee.

Professors Pritchard, Robertson; Messrs. Greaves, Harpley, H. L. Simpson, Wragg, Whittle; Dr. Fleming, Mr. Dray, Sir F. Fitzwygram, and Mr. Barford.

Registration Committee.

Professors Pritchard, Robertson; Messrs. Cartwright, Dray, Greaves, Wragg, Whittle; Dr. Fleming, Messrs. H. L. Simpson and J. F. Simpson.

Library Committee.

Professor Axe, Professor Robertson, Mr. Blakeway, Mr. Harpley, Dr. Fleming, Professor Pritchard.

Examination Committee.

Sir F. Fitzwygram, Mr. Harpley, Mr. Woods, Mr. Wragg, Mr. Greaves, and the Principals of the different schools.

Bye-Laws Committee.

Sir F. Fitzwygram, Professor Pritchard, Professor Williams, Professor McCall, Mr. Cartledge, Mr. Greaves, Mr. Harpley, Mr. H. L. Simpson, Mr. Wragg, Dr. Fleming, Professor Duguid, Mr. Whittle, Mr. J. F. Simpson, and Professor Walley.

Dr. FLEMING thought that the Committee should commence their work at an early date, as it had been postponed for some years.

Professor PRITCHARD quite agreed with this suggestion.

Dinner Committee.

Professor Pritchard, Mr. H. L. Simpson, and Mr. Wragg.

The Examinations.

The SECRETARY asked that the examinations might commence on July 6th. The three examinations would occupy about eight days.

Professor PRITCHARD said there was a notice of motion with regard to that matter.

The SECRETARY said that would have to be considered at the next quarterly meeting. If there were one student still under the old rules the Principals could claim examination. He had already been written asking when the new *régime* of only two examinations annually was to commence.

Dr. FLEMING thought that those who studied before the new law was passed could claim to be examined under the old rule, but unless a certain number, eight or nine, came forward there could be no examination.

Professor PRITCHARD said that counsel's opinion had been obtained, and if only one man came forward the College was bound to examine him.

The PRESIDENT said that such a point could easily be arranged with the Principals of the schools.

Professor PRITCHARD asked if it was known what number of students under the old *régime* were coming up from Edinburgh and Glasgow.

The SECRETARY said he did not know; each time he had asked the Principals he had been told that there were sufficient to require a Board.

The PRESIDENT said this concluded the business of the meeting.

Mr. GREAVES respectfully suggested to the President, at the commencement of his year of office, that he should, when possible, call the committee meetings for the same day as the quarterly meetings. It would be very inconvenient for gentlemen living at a great distance from London to attend committee meetings on other days. They might be held on the same day as the quarterly meetings.

The PRESIDENT said there were more committee meetings than quarterly meetings, and therefore it might be very difficult to carry out the suggestion, but he would do all he could to prevent the inconvenience.

Dr. FLEMING said the number of Honorary Associates had of late been rapidly diminishing. Last year he was remiss in neglecting to mention the name of a member of the profession in Brussels, who was extremely kind to

him when he attended the Conference on behalf of the College. He alluded to M. Hugues, who was an army veterinary surgeon, and whose name stood very high in veterinary circles in Belgium. He would therefore now propose him as an Honorary Associate. The Council had to a great extent neglected to recognise the Australian colonies. There were excellent men there who could not come to England to be examined, and it would be extremely gratifying to them if their *Alma Mater* recognised their services and position. He proposed as Honorary Associates—Mr. Calvert, of New Zealand, Mr. Chalwin, of Adelaide, and Mr. Willows, of Sydney. Mr. Calvert had attained an excellent position in New Zealand, Mr. Chalwin was the Veterinary Adviser to the Government at Adelaide, and Mr. Willows was Veterinary Surgeon to the Australian Contingent at Suakin.

Mr. DRAY seconded the proposals, which were unanimously agreed to.

The next quarterly meeting was fixed for July 3rd.

Additional Fellowship diplomas were ordered to be printed.

The proceedings of the Council then terminated with a vote of thanks to the Chairman.

QUARTERLY MEETING OF THE COUNCIL, HELD JULY 3RD.

J. ROALFE COX, Esq., President, in the chair.

The following members of Council were present:—Dr. G. Fleming, Professors Robertson, Pritchard, and Axe; Messrs. J. F. Simpson, H. L. Simpson, B. Cartledge, W. Simcocks, F. W. Wragg, W. Duguid, J. S. Carter, E. C. Dray, W. Whittle, T. Greaves, W. Mulvey, A. Santy, P. Taylor, F. Blakeway, W. Wood, H. J. Cartwright, H. R. Perrins, and A. W. Hill (Secretary).

The SECRETARY read the notice convening the meeting, as also the minutes of the previous meeting, which were confirmed.

The SECRETARY also announced that letters had been received from Professors McCall and Walley, and Mr. Barford, of Southampton, expressive of their regret at inability to attend.

Presentation to the Museum.

On the motion of Mr. DRAY, seconded by Mr. P. TAYLOR, a vote of thanks was passed to Mr. Naylor, of Wakefield, for his presentation of an interesting specimen of diseased pedal bone and hoof of a colt following an injury.

Honorary Associates.

The certificates conferring this title upon Messrs. Hugues (Belgium), Calvert (New Zealand), Chalwin (South Australia), and Willows (New South Wales), were duly signed by the President and Vice-Presidents.

Correspondence.

The following letter from Mr. Geo. Thatcher, Solicitor to the College, was read, and ordered to be placed upon the minutes and printed in the Journal:

“19, Bennet’s Hill, Doctors’ Commons, London, E.C.

“2nd June, 1885.

“Dear Sir,—I have read the Charters with a view of ascertaining what business can be transacted at the first Council meeting after the annual meeting, and am of opinion that all that can be done at that meeting is the appointment of President, Vice-Presidents, Treasurer, Registrar, and Secretary. The doubt which has arisen on the subject is caused by what

would appear a contradiction in terms in the Charter of 1844. I have no doubt that it was the original intention either that all Vice-Presidents should be elected at the annual meeting of members, or that they should be selected by the Council out of their own number. Could either of these courses be adopted, any business could be transacted on the first Council meeting after the annual meeting ; but unfortunately the Charter directs that any member of the College, whether a member of Council or not, is eligible for the office of President or Vice-President, and on election becomes an ex-officio member of the Council ; and it says subsequently that they are to be elected at the first Council meeting. This leads to the difficulty which arose yesterday, that gentlemen may become members of the Council whom it is impossible to summon to the first Council meeting, because until their election as President or Vice-Presidents at the Council it cannot be known who they are. I have considered the question, whether a meeting of the old Council could be summoned after the annual meeting and before the first meeting of the new Council, but I do not think it would be legal ; it would certainly be against the spirit of the Charter, and no election of committee under it would be valid, as Bye-law 18 expressly states that committees should be elected by the Council from its members, and it is not known who all these members are until after the election of the President and Vice-Presidents at the first Council meeting. The waste of time to so many members of Council occasioned by the present Charter is greatly to be regretted, but without some alteration of the Charter is, in my opinion, unavoidable. I remain, dear sir, yours faithfully,

“GEO. THATCHER.

“A. W. HILL, Esq.,

“Secretary Royal College of Veterinary Surgeons.”

Communications from the Scottish Metropolitan Medical Veterinary Society, the Central Veterinary Medical Society, and the Lancashire Veterinary Medical Association were also read, suggesting amendment of Clause 9 of the Supplemental Charter, in connection with the Fellowship degree.

Finance Committee.

The report of this Committee was then read and cheques were ordered to be drawn for current liabilities, and it was further ordered that £700 should be placed to deposit with the bankers to form part of the general account of the College. The Committee also advised the signing of cheques drawn to meet liabilities.

Mr. CARTLEDGE asked why the £700 could not be invested in railway debentures, which would yield a higher rate of interest than that given by the bankers.

The SECRETARY replied that the money would in all probability be wanted in a very short time, and the account would have to be drawn upon ; therefore it was advisable not to invest it in any permanent security.

The report was then unanimously adopted by the Council.

Fellowship Degree.

The report from the Examiners for this degree was also adopted. It contained the names of the following successful candidates :—Messrs. P. Walsh, W. Wilson, H. L. Simpson, T. Campbell, F. W. Wragg, W. T. Peacock, J. F. Simpson, G. J. Mayor, W. J. Mulvey, W. Awde, and J. G. Cross.

Fitzwygram Prizes.

The SECRETARY read the result of these examinations, copies of which had been forwarded to the professional journals.

Obituary.

The SECRETARY read the list of names of members deceased since the last meeting.

Notice of Motion.

Professor AXE gave notice that at the next quarterly meeting he would propose that Bye-law 47 be amended as follows:—"A student holding a foreign or colonial diploma from any veterinary examining body recognised by the Council shall be exempt from attendance on the course of lectures for the first two years, and from the examinations at the end of those years respectively, *provided he has regularly attended a veterinary school for not less than three winter sessions of six months each, and qualified in the subjects comprised in the first two examinations of the Royal College of Veterinary Surgeons.*"

SPECIAL MEETING.

The meeting was then made special for the purpose of considering several notices of motion, standing in the names of various members of the Council.

The Final Examination.

Mr. T. H. SIMCOCKS first moved, "That at the Final or 'C' Examination, a written examination be added to the oral and practical. He said that his desire was to place the profession upon the same footing as regarded the Final Examination being in writing as all the other learned professions. It was the duty of the Council to take every means in its power to ascertain what really was the knowledge that each candidate for entrance into the profession possessed; and he ventured to think that his proposal, if adopted, would aid very much in bringing about that result. There was no doubt whatever that, under certain circumstances, very good men were sometimes rejected in the oral examination who would pass with ease the written examination; while there were incapables who, although they would go straight through the oral test, would expose their ignorance in their written answers. By adding this written examination an exact idea of the real information possessed by each candidate would be obtained. The chief objections to his proposal would no doubt be, first, that the profession was not ripe for such a change; and, secondly, that it would entail some additional expense upon the College. With regard to the first, he really did not see why some effort should not be made at once to level up the veterinary examinations to the standard of those of other professions; while as to the question of expense, he did not believe that the examiners would require increased fees for the trifling extra duty of looking over the papers of the students. This written examination would also prove a check upon the sort of Matriculation Examination instituted by certain authorities other than the Royal College of Veterinary Surgeons. He had no hesitation in saying most positively that since this so-called Matriculation Examination had come into existence young men had been passed into the schools who were grossly illiterate, and incapable of writing or speaking the English language with a moderate degree of correctness; but the authorities sanctioning such Matriculation Examination would be more careful in seeing that they did not admit illiterate men if they knew that the Royal College of Veterinary Surgeons would have a subsequent opportunity of ascertaining the real qualifications of the candidates.

Mr. GREAVES said that although he was not at present very much in favour of the motion he would second it, because he considered it was a matter which ought to be ventilated.

Mr. SANTY thought that a final examination in writing was unnecessary,

because the student was already required in the practical examination to write certificates and prescriptions. He should like to hear from Mr. Simcocks the nature of the questions that would be set.

Mr. SIMCOCKS said they would have no reference whatever to general education, but be confined to professional subjects.

Mr. CARTLEDGE could hardly imagine what subjects there were which, if capable of being dealt with in writing, were not equally capable of being discussed *vivâ voce*. He should therefore oppose the motion.

Professor AXE supported the motion. As Mr. Simcocks had very justly said, there were many students who from nervousness or some other cause failed in their *vivâ voce* examination, who would be morally certain to obtain their diplomas if given papers to which they could supply written answers; and on that ground alone he (Professor Axe) thought the motion was a step in the right direction. He also thought that it would do good by bringing pressure to bear upon the students which should induce them to improve themselves in the art of writing and inditing, in which accomplishments many of them were greatly deficient. A short time ago the decisions arrived at by the examiners had been much canvassed, and in some instances the method of examination was seriously condemned. Now, if a written examination did nothing else, it would certainly form a document which could be referred to if any student should feel himself aggrieved with regard to the estimate put upon his work. As to the profession not being ripe for such a change, he was quite of a contrary opinion; he thought that it was ripe for anything of that sort. If the proposal were put in force, he was sure that the students would soon set about preparing to qualify themselves to meet its requirements, and in this the teachers would lend them all the aid in their power.

Mr. WOODS said he should support the motion if it were not enforced for some considerable time to come, so as not to affect the present pupils at College.

Mr. SIMCOCKS said that, if carried, his proposal certainly would not be put into operation at once. He should like to remind the Council that it would not require increased knowledge on the part of the students, but simply furnish additional means of ascertaining the extent of their information.

Professor ROBERTSON said he had no objection whatever to the motion, but he should be glad to learn from Mr. Simcocks if he had thoroughly thought out the results which his proposal would produce. In the first place it would require all teaching to be stopped a fortnight before the termination of each session, and it would mean additional expense to the College (for the Examiners could not be asked to work for nothing), which would have to be met by increasing the fees charged to students, upon whom the present financial burden was quite as much as they could bear. Then came the question, Is it worth while to pay more to enter the veterinary profession than heretofore? It required three years of study to qualify a man for the position of veterinary surgeon, and the expenses incurred during that time were quite as large as they ought to be in proportion to what was afterwards gained in practice. He believed that the same topic had been before the Council some time ago, when it was resolved to postpone its consideration until the term of office of the existing Examination Board had expired, and he suggested that a similar course should be followed on this occasion.

Dr. FLEMING: Why not make the A and B examinations written examinations?

Mr. SIMCOCKS said he should have no objection whatever to that. His idea in making the motion was to get in the thin end of the wedge.

Mr. P. TAYLOR thought it would be better to postpone the resolution until two years hence, when there would be a real reform of the whole system of examination.

The PRESIDENT observed that he was rather inclined to think that the Examiners should be voiceless on this matter, but as Mr. Greaves had asked for some expression of opinion on their part, he (the President) might say that, in his opinion, there was a great deal to recommend itself in the idea of written examinations. With regard to the additional expense which it was thought might be incurred, he ventured to think that that consideration might be dismissed altogether, for he was certain that not one of his colleagues would think of making any extra demand upon the funds. Already they had undertaken voluntarily twice the amount of work in the practical examination, for which they had neither received nor desired any additional recompense. He thought, however, that the time had scarcely arrived when such a motion as that proposed could be passed with any real advantage. He therefore felt that it would be advisable to let the matter stand over until the reorganisation of the Examining Board. He said the Examiners had commenced their duties with the full determination to do their best in all interests, and any suggestions made to them would receive full consideration.

Mr. SIMCOCKS said in deference to the evident wishes of the Council he would withdraw his motion.

The motion was accordingly withdrawn.

Dates of Examination.

Mr. F. W. WRAGG moved, "That a Committee be formed to take into consideration the fixing of permanent dates for the several examinations of the Royal College of Veterinary Surgeons." In doing so he said that if the dates of the examinations were permanently fixed it would be a great boon to the Examiners, who would then know exactly when their services would be required, and an advantage also to the teachers and students. He believed that the majority of the profession would welcome a relief such as he proposed from the present uncertainty, for Veterinary Medical Associations in different parts of the country were very often deprived of the services of some of their members owing to the clashing of the dates of their meetings with those of the examinations.

Mr. SANTY seconded the motion.

Mr. DRAY observed that an Examination Committee had been appointed at the last meeting of the Council, who might consider the question raised in Mr. Wragg's motion.

Mr. WRAGG said he would be satisfied if permanent fixtures were made; he did not care who arranged them. He thought, however, that the examiners should be added to the Committee, which was agreed to accordingly.

The Election of Fellows.

Mr. H. L. SIMPSON moved, "That a Committee be appointed to inquire into the operation of clause 9 of the Supplemental Charter of 23rd August, 1876, and to report thereon to the Council." His object, he said, in bringing the matter before the Council was to direct attention to what he thought an injustice to those members of the College who were not also Fellows, and to the fact that the Fellowship had not been that success which its promoters or the profession generally could have desired. With regard to the injustice, the original Charter of 1844 distinctly declared that the Presidents, Vice-Presidents, members of Council, etc., should be elected from the members of the body politic and corporate, whereas the Charter of 1876 provided that next year that right should be abolished. The words of the Clause are:—"That at the end of ten years from the date hereof no member of the said College, save and except the present members of the said Council, who shall not also be a Fellow of the said College, shall be eligible to be a member of the Council or to serve as a member of the Board of Examiners." In another Sup-

plemental Charter, that of 1883, when alterations were made of what existed in the original Charter of 1844, the old provisions were recalled and the phrase used, that notwithstanding what had been previously agreed to, such and such alterations should be made, but in the Charter of 1876 nothing of the kind was to be found, which might account for the members having been caught napping at the time. It simply took away the right of the members to select their officers from the profession generally without any reference whatever to the privileges that had belonged to them hitherto. He would not say there was an attempt to gag those who were on the Council, but every member not also a Fellow was barred from office except he who happened to have a seat at the Council at the time. It might be argued that the profession could have objected to the clause when it was first drawn up, but no one realised its real effect, and so it had been passed. He was happy to say that the apathy of the profession nine years ago when this clause was passed had entirely vanished, and in its stead there was a strong feeling all over the country that it should be reconsidered. In proof of this he might mention that a communication had been sent to him by Mr. Kidd, the Secretary of the Royal Counties Veterinary Medical Association, containing the opinions of various veterinary associations, of which there are over twenty, and which, in nearly every instance, were favourable either to the alteration or rescinding of the obnoxious clause. He was not there to discuss now what the course to be followed should be, but simply to ask for a committee of inquiry. As to the popularity of the Fellowship, the most ardent supporter of that distinction could not say it had been a success, as only about 120 Fellows had been elected, forty of whom only had been admitted by examination. Such a title ought to, and will eventually, carry with it advantages to the holder which will make it coveted by the profession, and by charging a fair fee to the candidates the College would be benefited by an increase of its funds, of which it stood in great need in order to meet its enormously increased expenditure—justifiable expenditure in earnest endeavours to raise the status of the profession. There could be no doubt that the Fellows had acquired rights which were unassailable, but, on the other hand, they must not say that the members should go absolutely to the wall because in 1876 there was no one who looked after their interests. He believed there was a grand opportunity for compromise if the Committee which he asked for were granted; they could go through the Charters, and perhaps devise some means for effecting so desirable an object. He would remind them that the Council of the Royal College of Surgeons found their first Fellowship Charter unworkable, and after nine years they obtained power to amend it. Why should not we do the same?

Mr. MULVEY seconded the motion, which was agreed to.

The following gentlemen were then appointed as the Committee :—The President, Sir F. Fitzwygram, Dr. Fleming, Professor Walley, Professor Pritchard, Professor Robertson, Professor Duguid, Professor Axe, Mr. Barford, Mr. Greaves, Mr. H. L. Simpson, Mr. J. F. Simpson, Mr. Harpley, Mr. Mulvey, and Mr. Peter Taylor.

Divisional Representation.

Mr. T. H. SIMCOCKS moved, "That a Committee be appointed to examine and report on the scheme proposed by Mr. Cunningham for divisional representation." He said that personally he was strongly in favour of the scheme. Those whom he represented at the Council had always been treated very fairly, but some gentlemen across the Border appeared to think that they had not been dealt with properly, and so were anxious to send their own representatives to the Council. It was only due to the profession that the scheme should be investigated.

Mr. SANTY asked whether, under the scheme, gentlemen wishing to be elected to the Council would have to appeal to the suffrages of boroughs or districts, as in a Parliamentary election; and being answered by Mr. Simcocks in the affirmative, he said he would second the motion.

Mr. GREAVES thought that, in view of the scheme already sanctioned by the Charter, the Council could not alter it without going to the Privy Council for another Charter.

Dr. FLEMING said it was the general opinion of the Council in 1882 that such a scheme as that proposed by Mr. Cunningham would not work.

The motion was then negatived without further discussion.

Professor WALLEY not being present, two notices of motion standing in his name were not entered into, discussion on them being postponed till the next meeting of the Council.

A hearty vote of thanks was then passed to the President, and the proceedings terminated.

NORFOLK AND EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE fifteenth half-yearly meeting of the above society was held at the Norfolk Hotel, Norwich, on Friday, May 1st, 1885, G. A. Banham, Esq., Cambridge, in the chair, when several of the members met to hear an essay read by Professor Walley, of Edinburgh, on "Neuroses of Undetermined Origin," in which Megrims and Epilepsy, Chorea and Immobilitié were mainly dealt with.

The preliminary business having been settled, a discussion arose as to the desirability of holding the meeting at various places in the eastern counties instead of always at Norwich as hitherto, and it was finally agreed, on the motion of Mr. SANTEY, seconded by Mr. OVERED, to hold the next meeting at Cambridge.

The PRESIDENT then read his

INAUGURAL ADDRESS.

"Gentlemen,—When I last addressed you as President of this society, I little thought that that pleasure would fall to my lot again. Although I would rather have seen some other member filling that post this year, still, as it is your wish that I should remain in office, I will endeavour to carry out the duties to the best of my ability, and I trust each of you will give me your support in doing so. No society can be successfully carried on without each of its members doing their share to further its progress and usefulness. This, I hope, each one of you will do by offering to read papers for discussion, and by expressing your views upon the subjects brought before us, as freely as they are given by others to you. I have heard members say they could not bring subjects before the meeting because they could not find time to write papers. Now this is hardly necessary, because I have often attended meetings where no paper was read, but simply interesting cases, etc., brought forward, and gained much knowledge from the discussion which followed them. If you cannot find time to write elaborate papers, you can at least make notes of cases which come before you in your daily practice, and bring them before the society, which will be as beneficial as long papers. I also hope that we may try this year to hold our meetings in other towns of the eastern counties besides Norwich. We are all very thankful to our Norwich friends for their labours in the past, but it is hardly fair to expect them to undertake this task year after year. The members residing in other parts of the eastern counties should take their share of such work, and, in order to start such a scheme, I shall be glad

to make arrangements for our next meeting in Cambridge, should you think proper to visit that town.

My discourse to-day will be a short one, upon those topics which are uppermost in our thoughts just now. Discontent and grumbling are ever before us, both in our Council, journals, and individual professional life. More time is spent in trying to obstruct our professional progress than to advance it. What with national, scholastic, and individual jealousy, everything that is brought forward for our professional good is prevented from becoming law, and even when it has become so, every effort is put forward to obstruct and prevent its being successfully carried out. This feeling seems to be the root of a great deal of the discontent now rampant. If we are to look at our craft from any such narrow basis as this, progress will be impossible. Our profession is one body, and it must be kept so. It is all the same whether in England, Scotland, or Ireland, and unless we do look at it in this broad and unbiassed way, depend upon it we shall make no headway. We are a small profession, and cannot afford to be divided. Whether our Council is composed equally of two Irish, four Scotch, and eighteen Englishmen, or all of one nationality or another, it does not—nor can it—signify, so long as each of these is doing his best for the good of the “profession.” Such complaints as are being made upon this matter are *unprofessional* and *groundless*. Has our Council done anything disadvantageous to the members of the profession of either country? or, Does our Council make laws and regulations for one, different to those of another? As far as I know, they affect all alike. The only advantage England has, perhaps, is that the headquarters are in London, and, I would ask, what better centre could we have in Great Britain? This is the only advantage one country has over the other, except in the number of members each contains, which we cannot help. England has the largest number of practitioners, and will have—at least for a long time to come—do what we will; and, as she has the largest number, she ought to be the “majority,” and the “minority” ought to learn to give in to her rule. If Mr. Cunningham’s constituency representation could heal the wound, would the function of the tissue be restored? No; for he proposes to give nineteen representatives to England, five to Scotland, three to Ireland, and four to the schools. However, the schools, Ireland, and Scotland put together would be in the minority still, and, so far as I can see, nothing would be gained. Our endeavour must be to get the best men we can for Councilmen, irrespective of nationality or any other selfish motive.

Much dissatisfaction is now being shown in some quarters with regard to the rights of the Fellows of the Royal College of Veterinary Surgeons. If the profession was opposed to the action of their Council in 1876, they should have then said so, and not have allowed nine years to elapse before showing their disapproval of their Council’s action. Is it fair to your representatives to try and prevent laws, which they passed with your consent, from being carried out? Now that it has been law for nine years, I consider it is unfair and distrustful of us to try and cancel it, simply because it prevents those who have not chosen to take the degree from sitting at the Council table, or Examining Board. Our Council passed this law for our professional good, and we must admit that, if properly carried out, it will be beneficial to us. Why, then, put all the obstacles you can in the way of its success? I hope a resolution will be carried here to-day, which will assure our Council that the Eastern Counties graduates appreciate the work they did for us in 1876, and assure them that they at least are not averse to measures which are beneficial to our advancement. Perhaps some reconciliations might be allowed to members who held the membership diplomas before the Charter was obtained, such as exemption from any scholastic educational test. The Board might arrange to hold its examinations in other places than London, so as to save the heavy

travelling expenses which candidates from the north, who wished to obtain the diploma, would incur, and any other advantages that the Council could see their way to permit to those members who obtained their membership diploma before the higher degree was instituted. But no such advantages ought to be allowed those who have passed since its formation. This would perhaps induce all members of the Royal College of Veterinary Surgeons to become F.R.C.V.S. who wished to sit at our Council chamber, and if they have no such ambition there would be no reason for them to prevent those that have. The Fellowship degree is like most other things of the kind, "good" or "evil," as we choose to make it; and it is for the profession to say which it shall be. The examination of students for the diploma of the Royal College of Veterinary Surgeons has again caused a great deal of correspondence. Some very hard and misleading statements have been made by those who, if honest, ought to have known better. Facts can be so put that they give the unacquainted exactly the opposite idea of the truth, and I am afraid that this fact has been brought into play on more than one occasion with the subject before us. However, I do not myself believe that the Council or the profession mistrust the Board, nor do I see how individuals can do so, after the able manner Dr. Fleming has dealt with the subject. However, I think it would be well if some of our Council would personally attend the examinations, and judge for themselves what the grounds are for complaint. If your examiners err at all, it is certainly on the wrong side, viz., that of "*lenity*." Various opinions have been advanced respecting the examiners and examinations, and if every critic could have a Board after his own liking, I wonder what would become of the candidates? Examiners, like teachers and practitioners, do differ in opinion upon subjects which admit of two or more views; but this, as Dr. Fleming points out, only shows that "they are mortal like other men." With regard to our Board being a representative one, I can only say that if the examiners do their duty to their profession, it must be a representative one. We have been told that none of the examiners for Class C have yet written a text-book on the subject upon which he examines. Now, I would ask whether this is one of the requisites for an examiner any more than it is for a teacher—or nearly as much so? I say that if an examiner bases his questions upon recognised text-books, that is all that is required. Let those who choose write and compile books! Again, you are told that neither in the past has there been anything in the shape of a syllabus to form a guide as to what subjects are examined upon at the different tables. I mention this simply to show you an instance where the fact is so put as to impress those who do not know with the opposite of the truth, so far as I am concerned. When your Council honoured me with a seat on your Examining Board, I at once made it my business to find out the text-book used at the various schools upon the subject I examined upon, and informed the teachers that I should base my questions upon their text-book—which course seemed to me to be correct and fair, both to Council, school, and student. Here, you see, although I did not actually write out "a syllabus" for each school, yet virtually I did so, when I told them I should base my questions on their text-book. This grievance, however, I hope is now of the past, as, since that complaint was made, a syllabus has been drawn up by each examiner, and, I suppose, circulated by your Council to each teacher at the various schools.

The profession has not been treated well nor justly by the Privy Council, with regard to registering men as veterinary surgeons. The Privy Council absolutely refused to take notice of any statements made by our members at the time the list was submitted to them, and they have refused to assist us in any way since. These uneducated veterinary surgeons are legally our *equals*, and we must acknowledge it. Many of these registered practitioners tell

their customers that they have "passed the college," and are equal to any other veterinary surgeon, which, of course, is readily believed by the public, as they do not know otherwise, and can only estimate us by their own knowledge. It is owing to this that many educated veterinary surgeons are put on an equality, or even below these quacks, by the public. It does not matter how well the M.R.C.V.S. knows anatomy, physiology, medicine, surgery, and therapeutics, these do not tell in public opinion—except in rare cases—because they cannot be estimated by the public. They judge us by the way we go about the animal, how we perform the little details which they and their grooms know how to do, and the success we obtain in practice. Now, unless we go about horses in a horseman-like way, and perform these little details (which some call "*practice*") as well or a little better than they can, they (the public) will think little of us, and will value us below that of a registered practitioner or groom; for this is the only line upon which they can judge. As far as our success in practice is concerned, I may say the quack has the advantage of us, because, in nine cases out of ten that we are called in to treat, they or the owners have been before us, and the animal is nearly dead before our advice is sought. If our clients would treat us fairly and employ us in easy cases as well as difficult, I should not complain; but this is not so.

It has lately been asked whether the registered practitioner has a right to use our professional crest and motto. I trust, if the Privy Council is asked, they will decide that these as well as our letters are all our exclusive right; but after we are told that we have no right to inform the public that "*as these persons (registered practitioners) have not undergone the qualifying test prescribed by the R.C.V.S. the Council do not hold themselves responsible in any way for their professional qualification*," I shall soon begin to question whether we have any "right" at all.

Can and ought we to meet registered practitioners in consultation? Legally, I suppose we cannot refuse to do so, but practically we must and ought not to do so, in the strict sense of the term. How can we consult with men who know nothing of their profession? My custom is to see the case with them, hear what they have done, and then give them directions how to proceed with the case, by my own medicinal preparations—in fact, I meet and treat them just as I should an "owner," "trainer," "stud-groom," or a "coachman," and I should strongly advise others to do likewise. These men rarely ask the educated veterinarian in their own district to consult with them, but usually one some miles from them. Now, I consider it absolutely unfair to your brother practitioner in the quack's neighbourhood to go and "help them out" when they get into trouble.

It is also scandalous to see local authorities employing registered men as inspectors under the Contagious Diseases (Animals) Act, although I believe they have a perfect right to do so.

Finally, gentlemen, let me say a few words respecting our behaviour to each other in our daily practice. No doubt we have all been met by and have had to meet other practitioners upon cases when our clients were not satisfied. Sometimes these meetings have been pleasant and profitable, at others the contrary. There is no doubt how such meetings should be conducted; a detailed account is unnecessary from myself, *for all we need do is to act towards our neighbour in all things as we would they should act towards ourselves under similar circumstances*. I am certain, if this simple plan is followed, those jealousies, which are the root of all our evils, will cease, and we shall reap the benefit.

In conclusion, gentlemen, permit me to thank you once more for the honour you have done me by again electing me to preside over your meetings another year; and I would have you ever bear in mind that—

1. We must look upon the profession as one body, and each try and throw in his mite to assist in its proper working.
2. We must select men to sit on our Council who are prepared to leave their self-interest, school, and national interests out of consideration when they are at the Council table.
3. We must prevent any extraneous bodies and corporations from interfering with the wishes of our profession.
4. We must come more into contact with each other not only in districts, but in countries.
5. We must impress the students with the fact that they are to know at least something of each subject, and that this is only obtained by hard work; that they are not required to answer all questions put to them by the examiners; that they should learn to answer quickly, and be careful not to show the white feather by saying "I don't know," before they have really thought of the question.
6. We should always use our "letters" to distinguish us from registered men.
7. We should make known the exact position of these practitioners to our friends and clients.
8. We should not refuse to see patients that have been under the treatment of a registered man, but care must be taken in doing so.
9. We must all learn the ordinary details of going about horses, etc., etc., so that we can work as well, if no better than grooms, etc., at this work.
10. We should not only assist our clients by diagnosing and prescribing for their animals when sick, but help them in other ways if possible.

A lengthy discussion followed, the rule of Council to admit in future none but Fellows to a seat on the Board receiving especial notice, and it was the opinion of almost all the members present that such a course was certainly a step in the right direction, and that, if properly carried out, it would be of great advantage to the profession generally.

Professor Walley then read his essay on

"NEUROSES OF UNDETERMINED ORIGIN."

Mr. President, and Gentlemen,—In the consideration of the subject of my paper, viz., "Neuroses of Undetermined Origin," I have selected two important forms of nerve derangement peculiar to the two great nerve centres—the brain and the spinal cord. There are other forms of nerve derangement which might have been included in a paper of this kind; had I done so, however, I should have wearied you and myself also. I have preferred to deal with the neuroses mentioned, mainly on the ground of their correlation to each other.

At the outset, I wish you distinctly to understand that neither of the four conditions dealt with can be looked upon as partaking of the characters of a definite or definable form of disease. *In themselves they are only symptoms; only, as it were, expressions of diseased conditions*—functional or organic—widely dissimilar from each other; yet, in their manifestations, remarkably alike.

While, in the majority of cases, two of these conditions, Megrims and Epilepsy, have their origin in cerebral disturbance, and the other two, Chorea and Immobilitié, in spinal disturbance, it is probably true that one at least, Chorea, has both a cerebral and a spinal origin. The arbitrary line of demarcation formerly drawn between affections of the brain and spinal cord has of late years been broken through, and an intimate connection has been shown to exist between the fibrous structure of the latter, and that of the great basal ganglia of the former.

Equally in their causal relations are these neuroses associated, and we shall find on careful investigation that the difference between Megrims and

Epilepsy, and between Chorea and Immobilitié, respectively, is mainly one of degree.

Another important character in the causal relations of the whole group is that the symptoms may originate either in a *centric* or in an *eccentric* disturbance, *i.e.*, in some irritation localised within the structure of the organ itself, or in an irritation localised in some important organ at a distance—as a bowel, the stomach, or the uterus—and producing its effect by reflex action through the sensory nerves.

The term “Megrims” is of uncertain origin. It is synonymous with “Hemicrania” (pain confined to the half of the head, or “Semi-pain”) of the human physician, and with the “Migraine” of the French. It receives also the general appellations of “Giddiness,” “Turn-sick,” and “Staggers,” and the more technical one of “Vertigo.” Each one of these, if not comprehensive, is at least suggestive, and has reference either to supposed causes or to the conditions presented. “Megrims” may be said to consist of *sudden and temporary arrest or derangement of volition and motion, accompanied by convulsions of more or less intensity*. While it is seen most largely in the horse, and that too, in adults; it is also occasionally seen in other animals, and particularly in the dog.

The *centric causes* are, firstly, some evanescent circulatory disturbance, produced by interference with the venous circulation, *e.g.*, temporary arrest to the flow of blood in the jugular vein by the compression exerted thereon by an ill-fitting collar, or by the head being depressed for a considerable time, as in grazing, while exposed to the rays of a hot sun, or by an animal being compelled to perform continuous rotatory motion—as in a threshing or mowing machine, under similar conditions.

Secondly, some permanent organic change, as the formation of tumours in the lateral ventricles; exostoses projecting from the cranial bones, tuberculous or melanotic deposits, sarcomatous formations, papillomata in connection with the vascular fringe of the fourth ventricle (a condition often overlooked even in *post-mortem* examinations); hydatid cysts, or Hydrocephalus. I have sometimes thought that the recurrence of the vertiginous symptoms might, in the case of tumours, be due to some sudden interference, as by pressure, with the arterial or venous circulation—probably extravasation of blood in some instances—or that it might be due to some sudden movement of fluid from ventricle to ventricle, in the case of Hydrocephalus. Undue excitement or great exertion might be the determining cause of such changes.

The *eccentric causes* have their origin in the following organs—the ear, the heart, the stomach, and the bowels. *Aural vertigo* is due to the presence of some irritating agent in the middle ear, *e.g.*, sand blown into the ear of the horse by ignorant grooms for the purpose of overcoming the obstinacy of a “jibber,” barley-corns or other grains dropped into the ear of the pig by unscrupulous jobbers, for the purpose of producing symptoms of madness in order that they may purchase the animals at a price considerably below their true value; the irritation of acari, as shown by Mégnin and others, in the condition known as *Auricular acariasis*; the insinuation of grass seeds or heads of grass into the ear of the dog; and the irritation of the discharges of otorrhœa in all animals.

Cardiac Vertigo is due to some organic disease of the heart, accompanied by interference with the circulation, *e.g.*, obstructive disease of the right heart, or vegetative valvular disease of the left heart, accompanied, in the latter case, by breaking up of the fibrinous material and its conveyance, in the form of small emboli, into the minute vessels of the brain.

Gastric Vertigo is mainly due to indigestion, and is always most pronounced and most constant in the cow, though by no means infrequent or unimportant in the horse, the pig and the dog.

Enteric Vertigo is most frequently seen in the dog, and is usually caused by the irritation of worms or by costiveness.

The Diagnostic Characters of Megrims are, sudden loss of control over the will and over the voluntary muscles, shaking of the head, staggering gait, twitching of the facial muscles, nictitation of the eyelids, and, occasionally, champing of the jaws; these indications are followed by complete loss of power, the animal falling over on to its side or pitching headlong forward and lying helpless and probably convulsed for the space of several minutes, then rising, giving its body a shake, and continuing its progress as though nothing had happened. During the fit the pupil of the eyes may be dilated or contracted, or one dilated and the other contracted.

One of the most remarkable cases of the kind I have ever seen, occurred in a Clydesdale horse, the property of a co-operative society. This animal—a six-years old, purchased the previous year, and at that time examined by me—had been very healthy until a few weeks prior to the date on which I was asked to examine him. The symptoms noticed were, constant shaking of the head, champing of the jaws and salivation, whenever the horse was put to work. These phenomena were always aggravated during a shower of rain, and in bad weather became so violent as to interfere with locomotion. After repeated and careful examinations had failed to reveal the cause or source of the symptoms, I decided that they had their origin in some form of brain disturbance, and placed the horse under a systematic course of treatment, with the result that he has now continued at work for about four years without any material interference with his general health being observed, and with only occasional returns of the attack.

In horses tied up in stalls, the approach of an attack of Megrims is usually heralded by the animal determinedly pulling back or hanging upon the halter or the collar chain, this being followed by convulsions; the horse, however, does not always fall, being saved from so doing by the support of the stall or a wall, and the halter.

Epilepsy.—This term is derived from the Greek, and signifies a sudden seizure—"I seize upon." It has a variety of synonyms, *e.g.*, "Falling Sickness" (in sheep in Scotland), "Staggers," "Fits," "Convulsions." The term "Eclampsia" is sometimes employed in a similar sense; its derivation is also from the Greek, signifying a sudden attack—"I seize hold of;" while some authors give its derivation from words signifying "I shine" and "brilliance," owing to the flashes of light which constantly pass before the eyes during the attack.

This term is a favourite with some veterinary authors, and its use tends to produce some little confusion. In human practice, no pretence to differentiate between Eclampsia and Epilepsy (or convulsions) is made, further than by stating that the "fits" in the former are more prolonged than in the latter condition.

The late Mr. Haycock, of Manchester, was very fond of using the term "Hysteria" when speaking of convulsions, more especially of Acute Uræmia; the word so applied is misleading, *Hysteria* being marked by alternate fits of laughing and crying. It is not, you know, the habit of animals either "to weep with those who weep," or "to laugh with those that laugh."

The term *Epileptoid* may very conveniently be applied to those convulsive attacks which, while not accurately representing Epilepsy in all its phases, yet, in some particulars, bear a close resemblance to it.

Another form of convulsive seizure often associated with Epilepsy is "Catalepsy." In this condition the seizure is sudden, but it assumes a somewhat trance-like character, and the limbs retain the position into which they are thrown at the time of the attack. Catalepsy is occasionally seen in all animals, but with the exception of one case in a hare, the result of a gun-

shot wound of the brain, I have seen it most largely in the cow and the pig. Mr. Wood, of Wigan, placed on record some years ago a good case in the cow, and Mr. Treacey has recorded a well-marked case in the horse.

Epilepsy differs materially from Vertigo in the following respects :—The attacks are more violent, more prolonged, and more exhausting ; the convulsions are associated with absolute unconsciousness and helplessness, and even after the subsidence of the fit the sufferer remains in a semi-conscious state for some minutes, instead of immediately regaining consciousness. The duration of Epilepsy is very indefinite. An animal, especially a dog, may live for years, and continue as an epileptic animal to the end. Epilepsy is not, in a sense, fatal ; but if the attacks recur frequently it may cause death by exhaustion. In animals, as in man, it is hereditary in its tendency, and one of the best examples of this was brought before my notice by Mr. John Malcolm, who, while assisting Mr. Hunting, of South Hetton, was one day asked by a farmer to give him some advice in reference to a litter of young pigs which were said to be the subjects of fits. On inquiry, Mr. Malcolm discovered that of three litters produced by one sow a number of the young pigs had in each case died from Epilepsy, while the progeny of one surviving sow of the first litter also became the subjects of it. The general causes of Epilepsy are much the same as in Vertigo, though, in so far as centric causes are concerned, it is a well-established fact that lesions localised at the base of the brain and in the medulla oblongata are more likely to induce such attacks than when situated elsewhere. In reference to eccentric causes, it may be noticed that the irritation accompanying œstrum and post-parturient conditions in the cow, the irritation of teething in young dogs, and the exhaustion consequent upon “over-suckling” in the bitch, are more frequently in operation to produce the symptoms than they are in the production of Vertigo. Cattle after long sea-voyages, horses suffering from Acute Uræmia, and pigs the victims of Rabies, frequently suffer from epileptoid convulsions, as do dogs after distemper. I have known one or two instances of Epilepsy associated with Rheumatism in the cow ; one animal, in particular, becoming violently convulsed at the approach and during the continuance of a thunderstorm—her condition, on several occasions, becoming so alarming as to cause her owner to dispatch a messenger for the butcher ; but, as the toothache often disappears when its victim approaches the door of the dentist, so this animal generally managed to recover from the convulsive fit on the approach of the flesher. The pathology of these cases, in which no definite cause can be discovered, is probably as much a mystery to-day as it was hundreds of years ago ; to some, an epileptic attack is evidence of Anæmia, to others, of Hyperæmia of the brain, while a third party discourses eloquently upon nerve-storms and nerve-explosions produced by a storing up of nerve energy—though why nerve energy should be stored up to a greater extent in one animal than in another, or what the precise nature of the determining influence of the storm may be, we are left to decide for ourselves.

Attacks of Epilepsy, unlike those of Vertigo, are frequently heralded, and particularly so in the dog, by some such sign as mopishness, uneasiness, an anxious expression of countenance, twitching of the facial muscles, or dragging at the halter or chain which secures the animal in its stall or kennel. In most instances, however, the attack is sudden, and preceded by no premonitory sign, the victim falling as if shot, and becoming convulsed instantaneously. As already indicated, the concomitant symptoms of Epilepsy are an exaggeration of those of Vertigo, and in addition we have tetanic spasms (usually opisthotonus), involuntary defæcation and micturition, yelping or snapping in the dog, spasmodic grunting in the pig, and, at the outset, bellowing in the ox. On recovery, there is in every animal a tendency to gyrate before perfect control over the voluntary muscles is gained,

and in the pig there is sometimes sitting on the haunches and whirling round and round with the fore part of the body. The retina, too, is markedly injected during the fit, and for some time after its subsidence, and the pupils dilated or contracted.

The fits recur at long intervals in some cases, but in many the intervals gradually shorten, until in the worst cases the animal seems to be scarcely out of one fit before it is seized with another.

Where death occurs during a fit it is probably due to carbonic acid poisoning, owing to the arrest of respiration—apnoea.

Treatment of Vertigo and Epilepsy.—In those cases which can be traced to a definite cause, no further treatment than the doing away with the cause is required, while in those of undetermined origin, the treatment must, to a large extent, be empirical in its character. In all cases the first step in the treatment is to attend to the condition of the alimentary canal, and to improve digestion by the adoption of appropriate measures, such as moderate laxatives, followed by gastro-intestinal tonics, and at the same time paying particular attention to dieting, and giving moderate exercise.

In reference to special medicines, those of an alterative character, as mercury (*hydrargyrum cum cretæ* in the dog) and arsenic, combined or alternated with nervo-muscular depressants, as chloral hydrate, belladonna, potassic bromide, or *cannabus Indicus*, are indicated. On the whole, potassic bromide (or the corresponding salt of sodium or ammonium, where it seems to exercise too depressant an effect) is the most valuable agent we possess, as it can be given in tolerably large doses for a very long time—years if necessary—without producing any deleterious effect on the health, and with the certainty of relief, or in many cases of absolute cure. Potassic iodide may be alternated with the bromide if it is thought that the Epilepsy is due to serous effusion.

During the convulsions, while little more can be done than the adoption of measures calculated to prevent the animal injuring itself and to facilitate respiration, the cow in every instance being supported in the sternum, I always advise that chloroform inhalation be had recourse to, as although it cannot exert any directly curative effect, it most certainly moderates the violence of the convulsions, and shortens their duration, indirectly favouring recovery by preventing exhaustion, and by giving rest, thus assisting nutrition of the nerve-cells. Nitrite of amyl is a useful substitute for chloroform if there is no organic heart disease, while bromide of ethyl is both safe and useful.

In reference to the question of *unsoundness* in connection with vertiginous or epileptic horses, I suppose the majority of the members of this Association will agree with me when I say that these conditions ought to be included in what should be an implied warranty in connection with the sale of a horse, where the price is such as to justify the purchaser in assuming that his purchase is free from any hidden defect; such a matter should, in point of fact, be placed on a commercial footing entirely, and all the more so as it is quite impossible for any veterinary surgeon—no matter how exhaustive in its character he may make his examination—to say that no such affection exists. Certainly one's suspicions are sometimes aroused by the existence of some peculiarity in the behaviour of a horse shown during the progress of the examination, and if this peculiarity is associated with any pupillary abnormality, the attention of the vendee should be at once directed to it, and an explanation of the phenomena asked for.

Chorea—a term derived from the Greek, signifying “dancing” or “jumping.” Synonym, “St. Vitus’s Dance.”

This neuro-spinal condition, consisting, as it does, of a *persistent and rhythmic contraction of the voluntary muscles*, is most largely seen in the dog, occasionally only in the horse, the ox, the pig, or the sheep. As a

complication of Immobilitié in the horse, and of Louping Ill in sheep, it is comparatively common. While it is dependent for its production upon causes almost identical with those which give rise to Immobilitié, it differs from that condition in one important and special particular, viz., that the stimulus of motion is not required in order to bring about its peculiar manifestations.

Chorea may be *general*, i.e., affecting all the voluntary muscles; *partial*, confined to the muscles of one or two limbs, or to sets of muscles. It may, like Rheumatism, be erratic, i.e., disappear from one limb and reappear in another. It may exist in varying degrees of intensity, i.e., the spasmodic movements may be so pronounced as to visibly shake and contort the body; on the contrary, they may be so slight as to be capable of demonstration only through the direct medium of the touch. The intensity of its manifestations too is modified by various circumstances, as excitement—mental or otherwise—exposure, over-exertion, parturition, sudden chills, or the action of zymotic or septic poisons.

Chorea is frequently associated with Epilepsy and Paralysis—these conditions are, however, as a rule, secondary.

Its *duration* is very indefinite, and while it is not directly fatal, it may, when severe, produce death by exhaustion. Death, however, is usually due to the cause which gives rise to the Chorea, not to the symptom itself.

In some cases the choreaic symptoms tend to remit, in others to increase, with age—this depending upon the renewal, repair, or aggravation of the lesions that give rise to it.

The *Predisposing Causes* are, probably, very few, unless we assume the presence of some inherent structural weakness in the grey matter of the cord, or some acquired weakness thereof resulting from disease.

Actual Causes.—Unlike Megrims and Epilepsy, Chorea, as also Immobilitié, is most largely the result of some centric irritation, the eccentric causes being very few. That its causation is rather of the nature of an irritation than of tissue-destruction is, I think, proved by the fact that the latter means annihilation of function, not excess of function. While I am quite prepared to admit that in many cases of Chorea no macroscopical lesions, nor, for that matter, microscopical lesions either, are to be discerned in the spinal cord, I have no hesitation in asserting that, in the vast majority of instances, some such lesions as chronic (venous or capillary) hyperæmia, softening or interstitial thickening of the structures of the cord may be detected on careful examination, and very frequently do we find—particularly after Distemper in the dog—effusion or extravasation into the spinal sheath, or congestion of the meninges themselves; such lesions being simply less extensive than those which are in operation to produce annihilation of function—Paralysis.

I have seen Chorea in the dog result from spinal concussion produced by blows, or by falls over stairs, bridges, and similar places; I have seen it produced by great mental excitement—as in fretting after the loss of a friend, or being thrown or falling unexpectedly into water, and sometimes after being violently attacked by a larger animal.

It is sometimes associated with Rheumatismal Endocarditis and with Asthma; the latter by itself, and that not infrequently, leading to endocardial disease in the end. Its production in these cases has been attributed by Dr. Hughlings Jackson to the detachment of small masses of degenerated fibrin from the endocardium, and their conveyance to, and lodgment within, the spinal capillaries, thus producing embolism.

In the dog we find that the worst cases of Chorea are those which follow *masked* attacks of Distemper; in other words, when the external manifestations of this disease are but slightly marked. In this respect it does not differ materially from other lesions which we know to result from suppressed

attacks of specific fevers, and we have analogous conditions following such attacks of Influenza in the horse and specific fevers in the human subject.

In connection with its production by a particular poison circulating in the blood, the experiments carried on by Dr. John Harley with cryptopia are worth bearing in mind. Dr. Harley found that injections of this alkaloid produced marked choreaic symptoms, which passed off when the action of the drug subsided. Broadbent and others are of opinion that choreaic movements have, at least in some cases, their origin in the central ganglia at the base of the brain—*e.g.*, the corpora striata.

Characteristics—Special and Concomitant.—As already indicated, the special characteristics of this affection are involuntary and spasmodic contractions of the voluntary muscles, occurring quite independently of, though aggravated by, motion, and not accompanied by any particular evidence of pain, nor, except in the early stages, of fever.

When localised in the muscles of the fore-legs and neck the fore-quarters are rhythmically depressed and retracted, giving the animal the appearance of nodding. I have seen a large boar so badly affected in the fore limbs as to be almost incapable of progression owing to the violent spasm pulling him on to his knees, and I have seen one case in a horse in which the fore limbs were kept in constant rhythmical motion like the legs of a man working a treadmill.

If the muscles of the face are affected there is twitching of the eyelids, and in bad cases champing of the jaws and profuse salivation.

In some cases in the dog there is constant howling or yelping, particularly at night, and even, like the rhythmic muscular movement, persisting during sleep. The howling or yelping is, in my opinion, due to some disturbing influence exerted upon the sensorium itself, not on the spinal cord. In all bad cases, retinal injection more or less marked may be detected by catoptric or ophthalmoscopic examination.

While in some cases of Chorea the general condition of the body is good, in others the victim of the affection becomes emaciated and debilitated.

Treatment.—Undoubtedly a knowledge of the cause is of great assistance to us in the treatment of Chorea, as we may then be enabled to get rid of the cause, with the certainty that with its eradication the Chorea itself will cease; unfortunately, in the majority of cases, we can only attack the symptoms.

When there is reason to suppose—as after an attack of Distemper in the dog—that spinal effusion exists, absorbents, as potassic iodide, are indicated, with counter-irritation along the course of the spine, and moderate purgation; otherwise, nerve tonics and medicines known to exert a soothing effect on the spine, must be administered in combination; thus, with iron, copper, zinc, or silver salts, or with arsenic, we may administer potassic bromide, chloral hydrate, belladonna, or conium. Strychnine as a spinal stimulant, and phosphorus as a restorative, have each been recommended. Strong coffee, in the hands of my colleague, Mr. Baird, was very successful in one case. I have frequently, however, seen it fail in producing any good effect.

Calabar bean, or its alkaloid, eserine, has been strongly recommended. I cannot support the recommendation. Frequently it will be found that where one medicine is useless another may produce the happiest results.

In all cases generous though moderate dieting is called for, and the animal should not be exposed to inclement weather, over-exertion, or excitement.

Immobilitié.—This term, as you are all probably aware, is a French term, and has reference to the peculiarly immobile condition of the limbs during the continuance of the spasm with which it is associated; it is synonymous with our “Shivering,” or, as it is called in Scotland, “Nerves,” and sometimes “Click” or “Cliques.”

The affection is undoubtedly, in every case, of spinal or of neuro-spinal

origin, and is peculiar to the horse, though on one occasion (June 6th, 1879) I saw a well-marked case in a white-coloured cow, and another in a Danish ox; the latter, judging from its condition, had been used largely for working purposes.

While it is occasionally seen in comparatively young horses as the result of Strangles, injury to the spine in casting, and in one case (Mr. O. Reardon's, of Limerick) after docking, it most certainly may be looked upon as an affliction of adult life. Mr. Mackinder only last night related two cases to me which had recently occurred in his practice in yearling colts.

Immobilitié affects most largely the hind limbs—one or both; occasionally it is localised in the fore extremities; seldom is it seen in a corresponding hind and fore limb together; exceptionally it involves all the limbs.

As a rule, the symptom is persistent and permanent, though I have seen animals the subject of Immobilitié entirely recover from the condition, especially when it has made its appearance in comparatively early life, but while this is so, there are very few animals indeed that may be said to entirely recover from the affection when it is at all pronounced—the symptoms often recurring when the subject of it is exposed to adverse influences.

Its Causes, both predisposing and actual, are in the main identical with those of Chorea. Spinal concussion is, however, replaced by severe spinal and neuro-muscular strain, hence it is seen in young horses subjected to severe exertion, involving great effort on the part of the limb or the haunch muscles; as in backing heavy loads over rough or soft ground for long distances, twisting and turning about with heavy loads on lorries, and slipping about in frosty weather.

It is seen as a sequel of Strangles, of Influenza, and even of common cold, and is a frequent result of Spinitis or Spinal Meningitis, in these cases being due either to structural changes in the spinal cord itself, or to effusion into the spinal sheath. Thirteen or fourteen years ago I traced the origin of a very bad case, in a white horse, to melanotic deposits on the great sciatic nerve and the spine.

Characteristics of Immobilitié.—The manifestations of this condition, though as a rule requiring the stimulus of motion in order that they may be developed, are occasionally seen while an animal is quiescent, and I have sometimes seen such an animal pluck up a hind leg and flex it so forcibly and spasmodically as to lose his balance, and fall violently against the wall or the stall-post. The symptoms are most certainly produced by suddenly backing or turning an animal, by moving it from side to side, or by picking up a leg and flexing it forcibly. When extreme flexion is practised the leg is spasmodically suspended for several minutes, and, in some cases, is only set down after a violent struggle. Rest usually aggravates the symptoms, while exercise causes them to pass off—at least temporarily. Exacerbation of the symptoms always occurs when an animal is put to very severe straining work, or exposed to cold or cold and wet, if it contracts a cold, or becomes the subject of Influenza or of Spinitis. A wound in the foot, or an injury to the affected limb, sometimes produces such violent excitement as to throw the horse into a state of extreme fever, and even render him partially comatose. The whole body, in such cases, becomes spasmodically convulsed, the head is thrust into a corner, and the sternum pressed violently against the edge of the manger or the hay-rack; the neck is sometimes drawn to one side or between the fore-legs, and the latter are moved in an automatic manner. The limb of the injured foot, and sometimes the whole body, may be bathed in perspiration; there is dilatation of the pupils, marked injection of the retina, and occasionally partial trismus. The symptoms I have just detailed may return in all their force even after a horse has apparently recovered from Immobilitié for a space of months or years, providing an exciting cause is brought into play; and, in some cases

they simulate those of iliac embolism. Immobilitié, I need scarcely remind you, is, even when only slight, unsoundness, and in no case should a veterinary surgeon advise the purchase of an animal suffering from it, not only on account of the fact that the symptoms are so liable to exacerbation, but more importantly so because such animals are bad and dangerous to shoe, do not lie down, or if they do, rise with difficulty; cannot be cast for operations, and even if put into stocks for such purposes are liable to injure themselves very severely. In no case should a veterinary surgeon cast such an animal without previously warning its owner of the probable consequences of doing so.

Treatment of Immobilitié.—In speaking of treatment in connection with this affection, it must be borne in mind that in old-standing cases little or nothing can be done towards the attainment of a cure. Means should, however, be always adopted to prevent aggravation of the symptoms; sore backs or shoulders avoided, and, if possible, pricks and similar injuries should be guarded against. Personally, I give strict injunctions to horse-keepers not to allow such animals to lie down, and direct them either to use slings or put the horse in a stall with a strong support of wood, rope, or chain behind him. In all cases where, from injuries or otherwise, the symptoms become markedly aggravated, every means should be used to allay the nervous excitement. If there is a wound about the body, or a prick in the foot, soothing treatment, such as persistent fomentations or poultices, with the application of anodynes, should be at once had recourse to; hot cloths should be applied to the loins, and nerve sedatives administered. Of the latter I find nothing gives so great or so speedy relief as belladonna combined with conium; these medicines should be given in small doses often repeated, and their use should be continued until relief is afforded. I have never seen much good follow the subcutaneous injection either of morphia or atropine. Nitrite of amyl will sometimes give much greater relief—though often it is only temporary.

A lengthy and practical discussion now ensued, in which many interesting cases were brought forward, with the result of various treatments, and one case was cited in which Immobilitié distinctly showed itself at the early age of six months in a cart foal, and two or three cases in twelve-months old colts.

A cordial vote of thanks to Professor Walley was proposed by Mr. SANTY, and seconded by Mr. HAMMOND. After having been suitably responded to by Professor WALLEY, a vote of thanks was given to Mr. Banham for presiding, and the meeting terminated.

R. S. BARCHAM, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of this Association was held at the County Hotel, Newcastle-on-Tyne, on Friday, May 29th, 1885; the President (G. Elphick, Esq.) in the chair.

The SECRETARY nominated the following gentlemen for election as members of this Association:—Messrs. J. W. T. Moore, Newcastle-on-Tyne; R. Brydon, Seaham Harbour; J. Nicholson, West Auckland; J. E. Tudor, South Shields; J. Borthwick, jun., Newcastle-on-Tyne; J. Handcock, Newcastle-on-Tyne.

It was decided that the hour of meeting be in future altered from 4 to 3 o'clock.

The PRESIDENT, in opening the discussion on Clause IX. of the Supplemental Charter of 1876, said the members of the profession had no ill-feeling against any of the Fellows, nor did they wish to see the Fellowship degree

abolished; it is a degree which most members would consider it an honour to obtain, but, unfortunately, in many cases circumstances prevent them from ever obtaining the coveted prize. What the majority of the members object to is that Fellows only should be eligible as members of Council, and that it would be putting the whole working of the profession into the hands of a very small minority, and, whatever important questions might arise, the members would practically have no voice in the matter—especially if the Fellows held opposite views. Several remedies have been suggested, the most important being :

1. To abolish the clause altogether.
2. To allow a certain number of members to sit at the Council board.
3. That both Fellows and members shall be eligible, but only after they have been Fellows ten, or members twenty years.
4. That one and all shall be eligible to become members of Council, but that Fellows only shall be elected as examiners.

Of the different views, I prefer the last, but shall be glad to hear what any of you have to say on this very important question.

Mr. DUDGEON said he had no doubt the objectionable clause was made in all sincerity to raise the status of the profession, but, at the same time, it was a mistake that no member, not being a Fellow, should be eligible as a member of Council or to serve on the Board of Examiners. It is most unfair, and I think our veterinary associations should join together and try their utmost to get the clause rescinded.

Messrs. HEDLEY and NESBIT were of the same opinion as Mr. Dudgeon, and thought the clause should be struck out.

Mr. GREAVES said, at the annual meeting the profession were of opinion that the clause ought *not* to be rescinded, but that the examination for the F.R.C.V.S. degree was wrong, and should be altered, so that *all* members might have a fair chance of obtaining it.

Mr. W. HUNTER said he thought the clause was a step in the right direction, but that the examination was wrong. Men in practice had no time to read up a lot of useless subjects. The examination should be a sound, practical one.

Mr. MOORE said when the degree was started there was no doubt it was intended to benefit the profession, but he objected to the present mode of examination, especially the educational part. The whole examination ought to be more practical.

Mr. STEPHENSON thought all that was wanted was to alter the examinations. Let the clause stand as it is, but rearrange the bye-laws relating to the F.R.C.V.S. examination.

Mr. W. HUNTER proposed (seconded by Mr. STEPHENSON) that the clause be not rescinded, but that the examination for the Fellowship degree be made more practical and less theoretical.

Mr. DUDGEON proposed (seconded by Mr. HEDLEY) that this Association respectfully request the Royal College of Veterinary Surgeons to take the necessary steps to rescind Clause IX.

The two propositions having been put to the meeting, nine members voted—Mr. Hunter's motion being carried by a majority of one.

Several interesting cases were brought forward and discussed by the members and their friends, after which the meeting terminated with the usual vote of thanks to the Chairman.

COLIN GRESTY, *Hon. Sec.*

THE WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting took place in the Veterinary College, Glasgow, on July 8th, the President, Mr. Campbell, in the chair.

Mr. TWEEDLEY read an instructive paper on so-called "Dislocation of the Patella."

A very animated discussion followed.

The PRESIDENT then submitted for consideration a few questions on professional etiquette and fees. Several members having expressed their opinions, a short but lively meeting was brought to a close by the usual votes of thanks.

L. MACQUEEN, *Sec.*

BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

A MEETING of this Society was held at Carlisle, on June 11th, at the Bush Hotel, the President, Mr. Carlisle, in the chair.

Mr. Kendall, Barrow, was elected a member, and Mr. Armstrong, Penrith, nominated.

A letter was read from the Secretary of the Royal Counties Veterinary Medical Association respecting clause 9 Supplementary Charter, which was thoroughly discussed, and the meeting was unanimous in supporting the action of that society.

Messrs. MULVEY, THOMPSON, sen., BELL, sen., DAWSON, PEARS, and the PRESIDENT spoke strongly against the clause. While fully appreciating the higher degree of Fellow, they were unanimously of opinion that it is very unjust to deprive the majority of their rights and confer them on the minority. Each of the speakers thought the members were entitled to the fullest choice in the selection of their representatives, and that the Council had no right to deprive them of their privileges. It was stated by Mr. Greaves that the Council had no power to rescind or revoke the clause, but the meeting was of opinion that if the Council made it, and got it to become law, they also had the power to rescind it, or obtain another Charter to override the obnoxious clause.

Mr. GREAVES made the following observations on the subject:—In deciding on making a higher degree, viz., a Fellowship degree, the Council considered at the time that in doing so they were creating an opportunity for aspiring members to raise themselves to a higher level, obtaining greater knowledge by increased studies, an inducement which had not hitherto existed; the tendency of this must be to raise the status of the profession generally. In the first place, the Council, in making their selection for the first Fellows, had to recognise the claims each man had to the honour. One of the first qualifications required was, Was he worthy of this exalted position? His respectability, his standing, the estimation in which he was held by his fellow veterinary surgeons in the county or locality in which he lived, all these things were taken into account. We thought it a good criterion to go by if we found that he had been selected a president of a veterinary medical association by his fellow veterinary surgeons, to whom he must be well known and respected. I can tell you that the whole profession in England, Ireland, and Scotland was carefully and most anxiously considered for men of excellence, and we made, as we thought, the very best selection we could for foundation Fellows. Since then members have been made Fellows by examination, the whole members being about 150, and nine more, some of them gentlemen of very large experience—such as Mr. Wragg, London; Mr. Simpson, Windsor, and Mr. Mulvey, of Bishop Auckland—are awaiting examination. Every

one of these are qualifying, or have qualified, for the higher degree, and have become Fellows on the distinct understanding that the covenant they entered into with the Council would be held sacred, and now, just as the time approaches for them to reap the reward of their labours, an opposition is got up against the 9th clause, *in which the gist of the whole matter lies*, the clause that gives them the benefit or privilege which was the chief inducement to strive to obtain the degree. Surely this would be dishonourable, and a manifest unfairness to them; it would be a flagrant injustice, and an illegal act. The ordinary veterinary surgeon, not a Fellow, complains, and feels himself aggrieved, and says that he is deprived of this privilege; but it must not be forgotten that no promise, no stipulation, in no sense whatever, was ever given or made to him that he should become an examiner. It has all along been only by courtesy and custom, which is entirely in the discretion of the Council, but it was never specified by diploma, or by charter, or by law, that he shall become an examiner; it is left wholly and entirely with the Council to regulate this by their bye-laws. As to the ordinary members of the profession having been robbed or deprived of their privileges of becoming a member of Council, this is amply and legally provided for by the Supplement-Charter of 1876, overriding the Royal Charter, 1844, and which is confirmed by the Act of Parliament, 1881. *It is now the law of the land that none but Fellows can, after this year, become either examiners or members of Council.* There is no hardship or unfairness in it. The whole profession knew of this clause at the time the Charter was obtained, and ten years was allowed as time sufficient for every member, who aspired to the position, and took an earnest interest in advancing his profession, to become a Fellow. Every member of the profession can become a Fellow if he likes; the door is wide open. It is only now, when we are about to realise our reward, and possess the honour, that the shoe pinches. Those who either have not the courage to be examined, begrudge the fee, or are indifferent to the title, now get up an opposition, and want the clause rescinded. *It cannot be rescinded or revoked, only by another charter.* We should only be laughed at if we applied for one. The degree of Fellow is open to every member of our profession. I would consent to modify the examination, and admit men of good reputation, high moral character, and of good standing in the profession. I would make this degree as popular as I can, by a modified examination, not less dignified. If I am told that there are members who are educated men, excellent men, eminent men in our profession, who are worthy men, and who ought to possess these privileges, *these are the very men we want, every one of them.* To them I say, if you really have any ambition in you, any strong desire to see your profession advance and occupy a higher standing, you will at once become a Fellow. Don't be cavilling, and haggling, and quibbling about it any longer, but join the party who have struggled, and are struggling, to deserve and gain a better position in society. It is this privilege, this hope of reward, that has been the chief incentive for members to work, to study, aspire, and qualify for this degree. Let the same laudable feeling actuate you. As soon as it comes into full operation it will then be valued, and ten will strive for it where only one applies now. Let not a feeling of envy cause you to disparage this degree, and join those who are now clamouring for and endeavouring to carry this retrograde movement, trying to drag us down again, trying to discourage every noble aspiration. I hope every member possessed with an enlightened spirit, every man of proved capacity, will esteem it an addition to our respectability and honourable character, will pluck up courage to become one of us, and enjoy the privilege.

(To be continued.)

PROCEEDINGS OF THE SECOND GENERAL MEETING OF
THE NATIONAL VETERINARY ASSOCIATION.*(Continued from p. 65.)*

The corroboration of the police-officer, who is often called in to support the charge, is also unsatisfactory. He is far more certain of the amount of pain inflicted than even the officer of the Society. If, for instance, it be a wound, and red, and the size of a shilling, never mind whether it is or has been in contact with any harness or gearing, the witness readily says that the animal was suffering great pain, and the wound was new-done. I do not wish for a single moment to infer a doubt of the honesty and veracity of these witnesses. I only say they often give evidence of a misleading nature, for want of a comprehensive knowledge of the subject. Indeed, it is perfectly safe to go a step further, and to say that the magistrates themselves often grievously err in the absence of a more detailed and intimate acquaintance with the exact nature of the case and of its surrounding circumstances.

Another delusion and a snare is the statement made by the prosecuting party during the hearing of the case, that the whole or one-half of the fine will be handed over to the Police Superannuation Fund, or to some local charity. The Royal Society for the Prevention of Cruelty to Animals, if consistently and fairly conducted, is just as charitable and as important an institution as any other, and consequently deserving of its just dues.

A report of the Committee appointed at the British Veterinary Medical Congress in 1881, for the purpose of "further considering the subject of cruelty to animals from a veterinary point of view," has appeared in the June number of the VETERINARY JOURNAL, and has subsequently gone the round of the newspapers. After carefully reading this "code" "formed to guide the public on the points respectively raised," my first thought was that I should not like to see my name amongst the signatories to such a ludicrous list. The mountain has been in labour, and it has brought forth a mouse. A more abortive and puny progeny was surely never produced, especially after two years' gestation.

In what may be considered a violent attack on the Executive of the Royal Society for the Prevention of Cruelty to Animals, I have used generalities, not from any desire to shield myself from any confuting replies. I can give chapter and verse in illustration, and I gladly seek severe scrutiny.

The Society is more of a Society for the Persecution of the Poorer Owners of Animals, than for the prevention of cruelty to the animals themselves.

Practically nothing is done by timely warning, and there is more zeal than discretion in the hurried manner in which most cases are undertaken. One cannot help but believe that if an officer succeeds another in a certain district, the successor feels it incumbent upon himself to have more cases than his predecessor had.

Mr. Woods, in his presidential address to the Lancashire Veterinary Medical Association, in 1883, in briefly alluding to the "cruelty question," suggested that a local committee, with veterinary surgeons upon it, might readily be formed in each district. To this committee doubtful and chronic cases could be submitted for an opinion as to whether the animals were fit to work or not. I would gladly serve upon such a committee without any remuneration whatever, and I often feel that I should like to help and assist the Royal Society for the Prevention of Cruelty to Animals, if it would only let alone these harassing and perplexing cases until it had surer ground to travel upon. Under the present aspects of the cruelty question, a man who owns a deformed or lame horse is at the whim and mercy of the officers of

the Society. If he appeals to his veterinary surgeon for advice, little satisfaction can be given him. The veterinary surgeon, if he thinks the horse is fit for work, may assure the owner to a certain extent, but he cannot obviate the probability of the man getting into trouble. A prosecution for a criminal offence, whether ending in a conviction or a dismissal, is abhorrent and detestable to every right-minded person. Any owner of horses is now liable to a sudden prosecution at the hands of the officers of the R.S.P.C.A. Is this as it should be, or is there any necessity for the present method?

There is sadly too much maudlin sentimentality about this subject of cruelty, and common sense is at a great discount.

In carrying out the original intention of the Provisional Committee of the National Veterinary Association, that this should be a "*minor subject*," I have curtailed my remarks as much as possible. I hope an interesting and full discussion will take place, and that in the future the veterinary profession and the Royal Society for the Prevention of Cruelty to Animals may work more harmoniously and agreeably together in so good and noble a cause as that of helping to make the lives of our "best friends and servants" more pleasant and comfortable.

I hope, too, that it will not be much longer necessary for veterinary surgeons to appear against the Society to keep its officers from exaggerating cases.

Professor PRITCHARD said: Mr. President and gentlemen, I must first tell you that I rather regret the line which this paper has taken, for I fully expected to meet with a greater amount of argument. I find that the greater part of the paper is occupied with the doings of the Royal Society for the Prevention of Cruelty to Animals, and with some remarks which have been made by Dr. Fleming. I will pass over the latter subject. With regard to the former, I, as a member of the committee of the society, could refute the greater part of the charges brought against it. If Mr. Briggs had been better acquainted with the working of the society, I have no doubt that he would have been a little less harsh. Mr. Briggs and I are very old friends, and I am quite sure that anything I may say will be taken in a kindly spirit. I know full well that there is one point in his paper upon which I am expected to speak, and I intend to do so as distinctly as possible. I allude to "docking." There are only about two other causes of cruelty alluded to in the paper. Many times I have been on the point of speaking at public meetings on the subject of docking, but something has always happened to prevent me doing so, and some people have been under the impression that I am afraid to face the subject; but it never entered into my mind to shirk it. I have been almost tempted to think that Mr. Briggs might be of a similar opinion to myself. At page 68—fifth paragraph—he says, "Docking when practised right and left, without discrimination, discernment, or real reason, is brutal butchery, and cannot, under the most favourable circumstances, be performed without more or less pain." Then again, at page 69—second paragraph—he says, "Personally I am as much against docking for docking's sake as any man." In the first quotation we get the words "real reason," upon which my argument will hinge to a great extent. Mr. Briggs has not alluded to any arguments which have been advanced from time to time, as to why docking is necessary; but I have, before now, been made unmistakably aware of what the "real reasons" are, why docking should be carried on by veterinary surgeons. I have had conversation with many who agree that it should be carried out, have had correspondence with others, and have been cross-examined in the witness-box. Firstly, it is said that it is a painless operation. So far as putting the animal into a proper position, and amputating the tail goes, the matter is very quickly performed, and the pain for the

moment is not very great, provided that the division takes place in the joint. But what follows even a successful operation? The wound takes from six days to a fortnight to heal; and a further time elapses before it becomes sufficiently hard to allow of even a slight pressure being made with impunity. The animal suffers during the whole of that time, and never forgets it. I have an example in my stable. The animal is one of the quietest I ever possessed; a child may walk round its legs. You may do what you like with it, except handling its dock. I have not the slightest doubt, that if it had not been docked it would have been as quiet to handle in the tail as anywhere else. This is only one instance out of many. If the operation is carelessly performed, or the tail is divided through the centre of one of the pieces of bone, what takes place? (I will put searing out of the question.) Where pieces of the tail have been sloughing away for three or four weeks, do you mean to tell me that the animal has not been suffering great pain? Why does it resist every time you want to handle the tail? So much for its not being a painful operation. It has also been said, that if the animal is not docked, the tail is very apt to get over the reins. I argue, that a docked horse is far more likely to get his tail over the reins than one undocked. I see some of you shaking your heads; but just take into consideration how a horse's tail is made. It is larger at the upper part, and gradually tapers down to a point; and the smaller it becomes the more pliable it is. People who say that a long tail is more likely to get over the reins than a short one seem to think that the tail is always carried like a poker. If you notice the tail of a horse which has not been docked you will see that it is carried in a curved manner, and when he swings it from side to side he is less likely to get it over the reins than is a docked animal. The finest trotting-horses and the best-conducted horses in the world—the American trotting-horses—are not docked. The rider sits down underneath the horse's quarters, and if the Americans thought that there was any risk of the tail getting over the reins they would try means to prevent it. I am now a practitioner in London, and have been in London for twenty-five years, and, before that, I was in the provinces, and from ten years old to the present time I have been driving horses. At the present time, too, I drive as many miles a day as most of you. Will you believe me when I tell you that never but once when I have been sitting in a vehicle have I seen the accident of the reins getting under the horse's tail, and on that single occasion a youth was driving a docked horse. I come to the same conclusion as the man who wrote a letter to the *Standard* respecting a parson who complained. I think that persons who drive badly had better leave off driving altogether. It is not necessary to keep jerking a horse's mouth in order to keep the reins out of the way. I believe in driving a horse with a light hand. Another argument put forward, is that if the tail is not docked it is apt to come into contact with the splash-board, and become raw, and set the horse kicking. Where is your anatomy when you bring this forward? Is it more likely that a shortened tail will come into contact with the splash-board, or one which is curved in a downward direction? I could take you to some cab-yards in London where probably you would see more horses with sore tails than you ever saw before; but I will guarantee that ninety-five out of every hundred are docked. Another argument is that if a horse's tail is not shortened, when you are tipping up a cart to empty it, the horse is very likely to get his tail under the cart when it is returned, and so it becomes injured. Well, I do not deny that this is possible; but if it is necessary to make carts in this way, why cannot the driver prevent this accident taking place? Is there not a better way of remedying this, than by chopping off the end of a horse's tail? In response to some remarks of mine at a meeting of the Central Veterinary Medical Society, my friend, Professor Axe, said that a horse with a long tail would probably smother a black coat.

in which a man went hunting. I have seen a good many hunters out where the tail has been of the full length, but in very few instances have I seen a coat interfered with in this way. Race-horses at least are not docked; but who ever saw a jockey plastered behind? From a paper written by Mr. Stanley one would suppose that the tails of animals were matters of no consideration, that they were simply rudimentary parts of the beast. I look upon the tail in all animals as having important uses, not only when they are still, but when travelling at their highest speed. There is no wiser provision than that shown in the distribution of the cutaneous muscle on the inner surface of the skin. There is a provision for the animal to have the power of removing offending agents by these cutaneous muscles. However, if you take the skin off the quarters, you find the fascia, and an entire absence of cutaneous muscle; and it is the same between the thighs. Why is this? Because, if the animal is left in a state of nature it possesses a means of brushing off the flies from these parts. It has been said that there is as much objection to removing the hair as the end of the tail. This may hold good whilst the animal is in use; but if it becomes necessary to turn the animal up for a rest, the hair will grow, but the tail will remain short always if docked. When the animal is young, at a high speed, and especially in turning corners, the tail is brought into use. If you watch a dog with a shortened tail running after one with a flowing tail, you will see that when they come to a corner, the animal with the long tail will get round with ease, whereas the other has to slacken his speed considerably before he can turn, and in doing so, will run on five or six yards before he can pull himself up. Racing men know that an animal which has been docked is never again brought into as good a condition, or to attain such a high rate of speed as before. Then again, we hear people say to us, "According to your views you should leave off performing other operations." There is nothing in this argument. We castrate our horses because it is a dire necessity, and our streets would be unsafe if it were not done. Then it is said, "But they are not castrated on the Continent." I beg your pardon. It is true that a certain class of horses are not castrated, but they are nothing like the animals we have to deal with. With regard to other operations that are carried out, there are plenty of reasons why they should be performed. I will say nothing further in the shape of argument, but I will add the advice, that you should not form your opinions upon your worldly knowledge of this matter. Do not be influenced by the idea that so much business will be lost (signs of disapprobation). I will appeal to your consciences when you are sitting quietly by yourselves, and I will then ask you to say whether you honestly think that there is any "real reason" for docking a horse, except under exceptional circumstances; circumstances which, in my opinion, are very rare. In cases where the dock is diseased, or where an accident has happened to the tail, its amputation may be desirable; *but except in such cases, I say that docking is cruel.* There were one or two other points mentioned in Mr. Briggs' paper, with which I will deal, as to deformities in horses being mistaken for lameness. There may be cases where deformities, not giving rise to pain, have been mistaken for cruelty, and, in some few instances, individuals owning these horses may have suffered. But there never was an institution which, in carrying out a great and good work, did not, quite unintentionally, commit some little wrong. I look upon the working of a horse with a club-foot as an act of cruelty, unless the work be slow, and the weight moderate. I will ask you to fairly refute the arguments if you can, but let us have no wanderings from the main line.

The PRESIDENT: You have heard Mr. Briggs' Paper fairly and fully discussed by Professor Pritchard. We shall now be glad to hear any other gentleman who has anything to say upon this important subject.

Professor AXE: Mr. President and gentlemen, I came here with the determination to be resolute, and to say what I had to say, in that spirit in which it has been suggested by Professor Pritchard; one man should deal with one side of a question, and another with the other side. But really, listening to the pathetic appeal he has placed before you, to his masterly mannerism, upon my word, I felt that my spirits were beginning to fail. (Laughter.) I will ask you to follow Professor Pritchard's suggestion, and to keep well within the line. Not to deviate, but to endeavour to decide his question, viz., Is the operation of amputating a horse's tail a cruel one? It is no use you attempting to decide what constitutes an act of cruelty until you have answered the question, "In what does cruelty consist?" I shall suggest to you, subject to the contradiction of those gentlemen who are adversaries, and I believe, honestly so, that cruelty consists—to take the general acceptance of the term—in the unnecessary infliction of pain, and I shall consent to discuss the question upon that definition of cruelty. I will supplement what I have to say by stating that it matters not for the infliction of cruelty that a man should be an active agent; he may be a passive one, but yet inflict cruelty. If you possess an animal, and know that that animal is suffering, and do not take steps to relieve it, that, in my opinion, constitutes an act of cruelty, notwithstanding your passive position. At one time, I thought of making some remarks not exactly extraneous to the subject, but Professor Pritchard has set me such a good example, that he has imbued me with a spirit which will prevent my making any personal remarks. But although I desist from this, still, it is a matter which might have been introduced into this debate, and upon which a good deal hinges. With reference to our relations with the Royal Society for the Prevention of Cruelty to Animals, we all have a very great regard for that Society and every one connected with it. We share in all its hopes and aspirations, and I venture to think that there is not one member of our profession who will not, when the time comes, exercise every quality he possesses, both moral and scientific, to prevent the perpetration of any act of cruelty. It is a question not between us and the Royal Society for the Prevention of Cruelty to Animals, but between us and the law. Now for the "real reasons" why docking is pursued. Professor Pritchard has brought to your notice a number of reasons why docking should be carried out, but not such reasons as you and I will render here to-day. They are the pickings of newspapers and not substantial reasons, upon which we shall base the legitimacy of the operation. Is there a gentleman who would say that docking is a painless operation? (Cries of "No.") Then why adopt this argument? Every gentleman, educated as he must be, knows that the tail contains sensitive structures; that you cannot damage a sensitive structure without pain. Where is the necessity for refuting this argument? We admit that the operation is a painful one, that the subsequent effects are painful, whether they be immediate or remote. There is one point in connection with the subsequent effects of the operation upon which Professor Pritchard has dwelt. He tells us that the wound at the end of the tail remains for a considerable period, if not for the whole of life, in a sensitive condition, and he produces an example. I will not refute that example, because what he says must be a fact. But I say, as a matter of fact, that when a horse has been docked, the cicatrice at the end of the tail never afterwards has the physiological sensibility peculiar to the undocked tail. I challenge Professor Pritchard to refute the assertion. Try an experiment yourselves, by pricking with a pin the extremity of your horse's tail, and then prick the body of the tail, and draw your own conclusions. Professor Pritchard says that the horse never forgets the operation. But equine psychology has not advanced to that stage of perfection which enables us to understand what is going on

in the mind of a horse. Professor Pritchard says that when a portion of a horse's tail is removed, there is a greater liability for that animal to get the tail over thereins. That is true. But this matter is not to be settled upon the question of whether a horse more frequently gets his tail over the reins when it is long or short. We admit the fact, for fact it is. But we say, "What is the cause of those untoward accidents which happen when a horse gets its tail over the reins?" It is not the fact of getting the tail over; it is getting it away when the accident occurs. It only requires the exercise of a little common sense to see that the tail may be got away from the reins with much greater facility when it is short than when it is long. Following in the track of my friend, we come to American horses. In fact, in dealing with this question, Europe has been canvassed for examples of horses which manifest extreme docility and have long tails, and now America is quoted. In alluding to the trotting-horses of America, Professor Pritchard has referred us to an exceptional state of things. It is not to the purpose to tell us that when American trotting-horses are being driven the driver sits close upon the animal's haunches, and that in the event of the tail getting over the reins it would be simply a "click" and the tail would be freed. In discussing this question even the crocodile has been called forward with a view of proving something which required no proving. The tail—as we know—answers a good and wise purpose, being given to the animal by a good and wise Creator, but may we not under the circumstances of domestication in this country be justified in removing a portion of the tail without having the stigma of cruelty attached to us? I do feel that I am occupying too much of your time (cries of "Go on.") We are told that people who cannot keep the tail away from the reins are not fit to drive. This seems to be a gratuitous expression of weakness. Are our children and wives, and perhaps ourselves—for there are doubtless those who, like myself, are not good at the reins—to discontinue the enjoyment of a drive because we do not happen to be expert drivers? I say that this will not hold water. The question of friction on the splash-board is a very trifling one. A horse will quickly let you know that it will not tolerate the splash-board. There is not one of the arguments that have been spoken or written which will hold water. I shall be pleased to enlarge at some future time upon what justifies the operation.

Mr. HUNTING (London): It was a most ingenious arrangement on the part of Professor Axe to sit down at the end of his speech with the remark that at some future time he should be pleased to justify docking. The professor is one of our best speakers and one of our ablest teachers, yet so weak is his case that in twenty-five minutes he has failed to adduce one single argument to justify what he allows is a painful operation. Mr. Briggs's paper utterly fails to justify docking, and Professor Pritchard, to make a clear case, has to fall back upon arguments used by other veterinarians. His refutation of them is, to my mind, complete—so complete that I need add nothing to his remarks. But why all this professional excitement? Mr. Briggs tells us. On page 66 of his paper he says, "It is when the Society stretches its arms too far, and plunges promiscuously into prosecutions, seriously interfering with rights and privileges which certainly ought to be enjoyed by respectable veterinary surgeons, that affections are alienated, assistance refused, and an attitude of hostility assumed." This is where the shoe pinches; it is our professional jealousy. This, too, was shown by a resolution of the Midland Veterinary Medical Association to the effect that "docking is justifiable when performed by a scientific veterinary surgeon." I ask any of you, Is it impossible for a scientific veterinary surgeon to perform an act of cruelty? (Mr. Hunting was here interrupted, and reminded that the resolution referred to contained the words "when necessary.") I accept the correction with pleasure, but who is to decide? Professor Axe alluded to

harness-horses ; but are not hunters docked more frequently than these ? and as for coach-horses, they are docked until they hardly have a tail at all. I know that none of us dock a horse under the idea that we are committing an act of cruelty. You do not allow the whole extent of the question to be faced. You back up Mr. Briggs when he makes the statement I have referred to on page 66, but you hiss when it is repeated to you here, in other words, because you know that it is true. There is in Mr. Briggs's paper one of the most insulting remarks I ever met with. At page 70 he says, "A report of the Committee appointed at the British Veterinary Medical Congress in 1881, for the purpose of further considering the subject of cruelty to animals from a veterinary point of view, has appeared in the June number of THE VETERINARY JOURNAL, and has subsequently gone the round of the papers. After carefully reading this 'code,' formed to guide the public on the points respectively raised, my first thought was that I should not like to see my name among the signatories to such a ludicrous list. The mountain has been in labour and has brought forth a mouse. A more abortive and puny progeny was surely never produced, especially after two years' gestation." As to this, I have to say that the Congress appointed the Committee, and all that they did was to embody what the Congress had said and done.

Mr. SIMPSON (Windsor) : I apologise for rising, because my views are already well known, and I have thought it my duty to bring the matter before the Council of the Royal College of Veterinary Surgeons, to elicit their opinion. I may say that, like Professor Pritchard, I should like to see this subject discussed in a fair and gentlemanly manner without reflections upon any one. I do say that the veterinary profession has not been treated in a proper way. We are told in the Press that the veterinary profession are opposed to what the Royal Society for the Prevention of Cruelty to Animals desires, and that we are not in a position to give an impartial opinion upon the matter. What does that mean ? There is another statement made upon oath with regard to this subject—viz., that not merely many veterinary surgeons, but officers and soldiers are strongly opposed to docking, and there is a remark appealing to veterinary surgeons not to stand sponsors for swells and mashers. These things are likely to bring us into contempt, although I hope that the day has gone by for that ; for we have spoken out with no uncertain voice. As to the committee appointed by the Congress, I do not suppose that that committee was opposed to docking. The resolution that was carried by the Council of the Royal College of Veterinary Surgeons might appear not to be in harmony with the committee appointed by the Congress. The committee told me that they approved of it. So that there is no difference between that committee and the Council of the Royal College. With regard to the statement that not merely many veterinary surgeons, but officers and soldiers are opposed to it, is this a fact ? Is it a fact that army horses are not docked ? that the operation has been prohibited in the army for twenty years ? I have had the pleasure of living in a garrison town all my life, and I can say that a great many of the horses are docked. I find that the remounts are purchased ready docked. I think that we should consider what those connected with hunting and coaching think of this matter. Do you mean to tell me that those gentlemen who drive the coaches in the Park are mashers and swells ? Do you not know that you will not find a more humane man than he who drives his coach or keeps hunters ? Do you suppose that he would allow his horse to be docked if it was not necessary ? I do say that the Royal Society for the Prevention of Cruelty to Animals should admit that those who keep horses are the best judges on this point. If they want to stop docking they should do it in a legitimate manner, and get friends in the House of Commons to bring in a Bill, and then if their cause is a good one they will get more friends every

year, and they will leave alone veterinary surgeons, so far as prosecutions are concerned. It is the first time within my recollection that I have felt my liberty of action interfered with. I do hope that the Society will seriously take to heart the real opinion of veterinary surgeons, and that they will take such steps as I suggest to put a stop to docking by persons who do not know how to do it. I think that this meeting here to-day shows that our profession is worthy of some consideration. I may say that I think many polo ponies are docked to an excessive degree.

Mr. MCGAVIN : I think that, as a rule, docking is not done by veterinary surgeons. The question arises, Who docks horses? I believe it is done at the blacksmith's shop or by horse-dealers. Professor Pritchard says that a great many horses that are docked are a long time recovering. I have not seen this to be the case, and where it is it must be because the operation is imperfectly performed. The blacksmith, or some such man, chops it off without ever feeling for the joint, and so irritation is set up and we get a bad case. This is a question for the veterinary surgeon rather than the law. As to bad drivers, we know very well that there will always be such people. As soon as a man has made a little money in business, he will get a horse and trap, although he may never before have driven a horse. It is certain that those who drive a horse with a long tail are more likely to meet with an accident than those who drive one with a short tail. The paper is on "The Prevention of Cruelty to Animals." I maintain that man is an animal of a higher type, and, with all due deference to Dr. Fleming and Professor Pritchard, I say that there are, in the workings of the Society, carried on as they are by magistrates who know nothing about science, very many cases of cruelty to our poorer brethren. With all due respect to those who are at the head of our profession, I say, Is it not cruelty to lend your scientific knowledge to the unjust prosecution of these poor people? I say, "Exercise charity." Charity covereth "*a multitude of sins.*"

The PRESIDENT : Gentlemen, we have now present the Secretary of the Royal Society for the Prevention of Cruelty to Animals; I am sure that you will be pleased to hear him.

Mr. COLAM : I am not a public speaker, but a talker; and if I do not vie with Professors Pritchard and Axe you will, I know, pardon me. I will, at all events, promise you that I will not occupy twenty-five minutes of your time in adducing arguments which do not require to be refuted. From remarks which I have heard, it strikes me that there is a feeling in this room that veterinary surgeons ought to be regarded as above the law. But, whatever a man may be, he must suffer the penalty of breaking the law. In this there is an equality, and the question to be determined is not whether a man who performs an act of cruelty is a veterinary surgeon. The real question is this, viz. : Is it an act of cruelty or not? I will not enter here at great length into the question of docking. Mr. Simpson says that the Society should not prosecute in these cases; but it does so in everything else, and I do not see why it should not do so here. He says also that we should go to the House of Commons for a declaration that docking is an act of cruelty. This is scarcely practicable. You cannot go to the House of Commons to ask them to settle every comparatively small question. An Act of Parliament is a general thing.

Mr. SIMPSON here interposed, and said that an Act had been brought in against pigeon-shooting. (Hear, hear.)

Mr. COLAM (continuing) : It may be that there has been an Act of Parliament brought forward to suppress pigeon-shooting, but it was turned out. The law itself, as maintained by the Society, already contended that pigeon-shooting, when there was any cruelty, was an act of cruelty notwithstanding the patronage it had from influential persons. If you say that

veterinary surgeons ought not to be interfered with by any movement for the benefit of animals you are putting yourselves above the law. I may say that I have not had time to study Mr. Briggs' paper, but in coming here by train I made a few notes. The object of the paper is stated to be, to bring about a more sensible way of preventing cruelty to animals. I am always very glad to learn, and if I can gain fresh information here I shall be delighted; I am continually learning from veterinary surgeons. But the paper does not tell us how to put down cruelty. The only suggestion which at all deserves the name of "instructive" is that in the third paragraph on the last page. The paper should be entitled "How *not* to prove Mr. Briggs' propositions." It tries to prove to us that the Royal Society for the Prevention of Cruelty to Animals, the officers of the Society, the police-constables, the Committee of the Congress, are all wrong, and nobody seems to be right but Mr. Briggs of Bury. It condemns the very foundation of English jurisprudence. Let us now look at the proposal contained in the sixth paragraph on page 70. In 1883 the President of the Lancashire Veterinary Medical Association is reported to have suggested as follows:—"That a local committee, with veterinary surgeons upon it, might readily be formed in each district. To this committee doubtful and chronic cases could be submitted for an opinion as to whether the animals were fit to work or not." Mr. Briggs then remarks, "I would gladly serve upon such a committee, without any remuneration whatever, and I often feel that I should like to help and assist the Royal Society for the Prevention of Cruelty to Animals if it would only let alone those harassing and perplexing cases until it had surer ground to travel upon." Suppose that this committee is appointed in some of your agricultural districts. First of all the question arises: Who is to appoint it? How would they set to work? Who would make the members meet? You know what I mean. I mean when it was necessary to decide a case of cruelty. Who would bring the horses and the persons to this committee? They would have to arrest persons to bring them. Who is to arrest, except the police-constable? As cruelty occurs all day long, the committee must sit permanently. Are they to be taken to markets and fairs? How is this committee to work? Perhaps you will say that one member might be deputed? But who is to be that member? Will the others join with him? Dr. Fleming and Mr. Briggs, will they agree? I say that veterinary surgeons are much divided in their opinions. I have heard of those who have been in favour of trimming and cutting off the ears of a horse (cries of Name"). I shall not give names. I have heard other veterinary surgeons *advocate* (?) starving a horse. (Much disapprobation was shown here, and considerable interruption took place.)

Mr. SIMCOCKS said: If these assertions be true, the persons alluded to deserve the reprobation of the profession. I ask Mr. Colam to state names.

Mr. COLAM (continuing) said: I must apologise for having made the statements without now giving names. I shall take the very first opportunity of doing so in print. I will proceed by saying that one of the most eminent men defended before the Privy Council the keeping of animals for thirty-six hours without water during transit. Even if the committee recommended by Mr. Briggs were practicable, I do not see the advantage of it. At the present time every case which is prosecuted by the Society passes through my hands, and the Society calls in veterinary surgeons to its aid to every case which is doubtful. I know that even now there is a discussion going on in which a veterinary surgeon has contended that the overstocking of cows cannot be cruelty.

Professor WILLIAMS: Let us make ourselves into a Committee and determine this question. It is said that an act of cruelty is to illuse, abuse, or

torture. I ask you if any of these terms can be applied to docking? I know that almost to a man you will agree with me that they cannot. I have no time to enter into the question. I do not believe that docking is an act of cruelty. Some little pain is inflicted, but it causes the animal little or no inconvenience. In the next place I will say that the operation is necessary, and in the third place I will ask you whether we are to tolerate the interference of a Society like that for the Prevention of Cruelty to Animals in an operation which is necessary? Listen to what Mr. Colam says, "With regard to docking of horses, I am in a position to state that it is considered cruelty, and if I can catch a member present docking a horse I shall prosecute him." There is the thin end of the wedge, put in by a Society supported by members standing high in our profession, to interfere with the privileges of every veterinary surgeon as soon as he obtains his diploma. I say that the possession of that diploma places the veterinary surgeon, in so far as relates to the performance of an operation deemed necessary, above the law. I trust that you will raise a strong voice against this interference on the part of a Society which has been assisted out of many difficulties by veterinary surgeons. We cannot hear accusations brought against veterinary surgeons for supporting various forms of cruelty without showing indignation.

Dr. FLEMING: Mr. President and gentlemen, I regret that this matter has not been fairly discussed. I think that we have departed to a large extent from the subject in treating of only a small portion of it, and leaving the wider phase of the question of cruelty to animals from a professional point of view. In 1881 at our Congress, the subject was fairly well discussed and certain conclusions were arrived at. They were embodied in a report drawn up by a Special Committee. With that Report I agree, condemn it as you may. I am perfectly certain that it is a report which will carry with it public opinion, whatever some may think. Now, sir, I think that this question of cruelty is a difficult one to discuss. To some minds, cruelty is a pleasure, to others it is an abhorrence. It is impossible to define what cruelty is from the point of view of different individuals. I will say that if our profession was not a humane profession, I would leave it to-morrow. I say that if it does not stand on the basis of humanity it can stand nowhere. Unless we assist in the alleviation of cruelty to animals we do not deserve the name of a profession. I have heard nicking advocated because it made a horse look better, and I have seen horses nicked and docked on the same day. I have seen ear-machines. Will any veterinary surgeon say that ear-machines and nicking are necessary now? The day is coming when docking will be placed in the same category. We are the only nation in Europe which dock horses. Nicking and docking were introduced on to the Continent from this country. You will find that in Germany and France to nick and dock a horse is to "Anglicize" the animal. An operation which is painful and unnecessary is a cruel operation. I maintain and can prove that army horses are not docked. Cavalry horses are not docked. I do not know of one which is docked. The fashion of docking is so prevalent elsewhere, that it is difficult to obtain horses which are not docked. The Adjutant-General has issued instructions that docked horses are not to be bought for the Army if it can be avoided. I can tell you that, so far as I know, Her Majesty the Queen has never had a docked horse in her possession. The Commander-in-Chief has had as wide experience with horses as any one here; he abhors docking, and orders officers off parade if they are on docked horses. Every officer who understands horses has a great dislike to docking. You say that it is necessary to dock horses to insure safety. Go to any other European country, and you will see undocked horses driven by bad drivers. Only quite recently there was an article in a sporting paper, in which hopes were

expressed that the practice of docking would not be introduced into the United States. Why should horses be docked in England any more than elsewhere? Even in this country the custom is not universal. In Lincolnshire and Eastern Counties generally you will see the cart-horses undocked, and in Kent the same thing prevails. I do maintain that the act of docking makes some horses difficult to handle afterwards. The horse has a most tenacious memory. Let those gentlemen who say that this is a painless operation undergo it themselves. Prove to me that docking is really necessary and I will not say a word against it. In 1869 action was taken by the Society for the Prevention of Cruelty to Animals against the cropping of dogs' ears. I appeared as a witness. The movement was said to be stirred up by maudlin sentimentality. But there is another motive than this with which we were wrongly said to be imbued. We must give animals their rights. I do not stand here for twenty-five minutes talking platitudes, nor shall I sit down and tell you that I will give you my reasons at some future time. I have made inquiries, and find that in the majority of cases it has been the docked horse which has got his tail over the reins. You may make much capital out of the fact of my appearing with Professor Pritchard in the witness-box. But you must attend a trial when you are served with a subpoena, and I trust that the day will never come when a veterinary surgeon will make a false statement in the witness-box to shield any man. I have had a long experience in nearly every part of the world. I know the utility of the horse's tail, and I say that no greater infliction can be put upon the animal than to mutilate that member. So far as Mr. Briggs' Paper is concerned, I hardly endorse any part of it. I have taken my stand, and shall not recede from it. It is my desire that our profession should figure as the friend of animals. I have had the honour of being associated with the Royal Society for the Prevention of Cruelty to Animals, and I deny that anything has been done by it which can be called unfair.

Mr. SIMCOCKS: I desire to protest most strongly against what I must call the insulting utterances of the representative of the Society for the Prevention of Cruelty to Animals. A more uncalled-for declaration I have never heard. I will not enter into the question of docking. I came here to be enlightened. But, so far, opinions seem to be equally balanced. One section says that the horse is safer to drive if the tail is docked. The other says that this is all wrong. I must say that I fail entirely to see why the profession should stop docking simply because a lot of military magnates disapprove of it. I venture to say that any veterinary surgeon has as good a right to express an opinion as the Duke of Cambridge. I propose that we obtain a decision in a court of law. Let Dr. Fleming and Professor Pritchard on one side, and Professors Williams and Axe on the other, state their views and let the magistrates decide. Or, if necessary, let the matter be brought into a superior court to be settled. I say that it is unbearable that an officer of the Society for the Prevention of Cruelty to Animals should be able to prosecute as he can now. The matter is purely professional. I think that we might with advantage devote some of the funds of the Association to the proper settlement of the question.

Mr. PETER TAYLOR: Mr. President and gentlemen, at the commencement of my remarks I will say that I do not think it right that in an English country a member of the Society for the Prevention of Cruelty to Animals should be allowed to go into the witness-box and give evidence on behalf of that society. No man has the best interests of our profession more at heart than I have. I say that it is damaging to that profession, and it will be injurious to it hereafter, when the facts of the present day shall be recorded in history, that a learned practitioner should come forth from the metropolis and give evidence against professional men for carrying out a legal profes-

sional operation. If anything will damage our profession more than this, I have yet to learn what it is. I believe, in Shakespeare's words, "To thy own self be true, and it must follow, as the night the day, thou canst not then be false to any man." A good deal has been said this afternoon about pounds, shillings, and pence. I appeal to any of you. Is there any professional man who would dock a horse for five shillings? The learned doctor tells you that he has delayed days before he could perform an operation. It would not take you two minutes to perform this one. Is an enlightened English veterinary surgeon, in this nineteenth century, after he has been educated in anatomy and physiology, to be told when he is performing an act of cruelty? The lower animals have been given to man for his use. The operation of docking does increase the value of a horse. We have animals with wicked tempers to deal with. A horse continues the vice of kicking until I dock him; after that he does not do it again. Are we to be dictated to by men who never were educated in the science of any profession, who occupy the positions they do through their having done something to please those who have the power to place them in office, where they have no right to be. Let us look at all the aspects of the cruelty question. We shall see, then, that the Society for the Prevention of Cruelty to Animals is guilty of much cruelty. A poor man with a horse, which, like himself, has to work hard for a living, may be going to Smithfield Market. The man and the horse are locked up, and a veterinary surgeon does not see the case until the next morning, when the man is in the police-court. Who knows the loss entailed in a case like this to a poor man? If we must have a society like this, let us have a professional man, with scientific knowledge, and let him seize the horses, and not a man who has no knowledge of disease. We will not be robbed of our position, for which we have paid so much, and the decision as to when docking is necessary or judicious shall rest with us.

Mr. HOPKIN: I am sorry at the turn the discussion has taken, and that Mr. Colam came in the spirit he did. Every right-minded veterinary surgeon is anxious to help the Society to suppress cruelty, but I do not see why we should be expected to sit here quietly and hear the charges Mr. Colam has brought against our profession. I do not know any of its members who would do anything of the kind he has alluded to. We have had to suffer a good deal in our district from the manner in which the local Society for the Prevention of Cruelty to Animals has carried out its work. It has acted often very unfairly, and it has only been on these occasions that veterinary surgeons have taken action against it. I quite endorse the statement made by Mr. Taylor that the Society has been exceedingly cruel. I know of many cases where it has been the means of the home being broken up and the family having to go to the workhouse. I do not believe that the object of the central body of the society is to obtain the greatest possible number of convictions; I believe the object of that part of the society is to suppress cruelty; but I cannot say this of the local society. In every case in which I have had to act I have been treated more fairly by the Royal Society than by the local society. As to this question of docking, I think that we have a stronger case than has been represented. I could refute all the arguments of Professor Pritchard if time permitted. I should like to impress upon Mr. Colam that he may take what action he likes, but that he will never put a stop to docking; as long as there is a demand for docked horses, they will be produced. I do not believe that veterinary surgeons crop dogs' ears. How many fox-terriers do you see with their tails on? not one in a hundred. But the tail-cutting is not done by veterinary surgeons. And if horses are not docked by veterinary surgeons the operation will be performed by incompetent men. There is more cruelty in drawing the teeth of four-year-old horses than in docking their tails. The illustration brought forward by

Professor Pritchard of a quiet horse which would not allow its tail to be touched does not prove anything. This very likely did not arise from docking; the animal had probably been "gingered." I can take you to very many cases where you shall handle the tails of docked horses and the animals will not move. Mr. Pritchard says that he has been long accustomed to driving, but never saw the necessity for docking. This is all very well whilst you have a horse not given to kicking, but suppose it is otherwise. We admit that the tail has its uses. Meet us fairly, and we will meet you.

Mr. HUNTER: I should like to say a few words as to why the Society has lost caste with veterinary surgeons in large towns. I have known many instances where the officers of the Society and policemen have exaggerated cases. In many prosecutions the wounds have been, so to speak, a mere nothing. By these means the Society gets into disrepute. I know a case where a boy was sent to prison for fourteen days for working a pony. His mother came crying to me to advance the money to pay her fines. I think that the officers should be told not to be over-anxious for convictions.

Professor WALLEY: In the first place, I must say that I extremely regret the turn this discussion has taken, and there is not a man in this room who will not regret it before to-morrow is over. I do not say that any one is to blame for it, but it certainly will not lead to the solution of a question of this kind. I can quite understand that from the remarks which have been made, the minds of many men have been heated, and words have been employed which would not otherwise have been used. I have known the Society for the Prevention of Cruelty to Animals for a number of years, and many of those connected with it are my best friends. I know that its supporters are actuated by the best of motives. At the same time, I do think that the Society frequently gets itself into disrepute by interfering in cases which ought to be left alone. A poor man goes about from day to day with a sword over his head. He perhaps works hard for a living, when suddenly he is dragged up to the police-court, without the slightest warning. I am speaking now of the local societies. The poor man very likely commits his so-called crime in utter ignorance. He goes out in the morning with his horse perfectly sound, but before he has gone far his animal falls lame, and he is treated in just the same way as others who really deserve punishment. In Edinburgh wherever a horse is found lame like this, it is sent to me to give an opinion as to whether the man should be prosecuted. I say *that wherever a man is caught in an offence he should be warned, and then fined if he repeats it*. If the Society would insist upon this, all bad feeling would be done away with. With reference to this question of docking, you will see if you look in the VETERINARY JOURNAL, I think in the report of the introductory address I gave in Edinburgh, I said that any one who has been hunting must have experienced the unpleasantness of having the mud switched all over his neighbours and himself. You will say, "You can cut the tail. Yes, you can; but, gentlemen, I think that in this discussion we have gone entirely off the groove. We ought to have proved whether docking was necessary or not, and if it is not necessary, we should decide to discontinue it. I do not know whether I am subject to prosecution if I state my opinions openly, but there are cases where I should not hesitate to dock a horse. I have had owners come to me saying that they could not drive their horses for fear of an accident. In these cases I do not hesitate for an instant to dock the horse. The question of pay has been introduced. I would ask you, gentlemen, Do we go about the world for what we can get? Do you or I, or does any veterinary surgeon, dock a horse for the sake of the paltry five shillings? I would much rather pay the owners the money to take the horse out of my yard. Let a question of this kind be argued upon its merits. The greyhound, it is well known, uses its tail to steady itself,

but it may occasionally be necessary to dock it. Whilst all this heated discussion has been going on, you have forgotten a lot of subjects. There is the question of putting a cow upon her back in a case of 'inversion of the uterus. The first case I saw was where the uterus had been out several hours. We tried to put it back without putting the animal upon her back, but we could not. We did it with the object of preventing the straining. Another question is that of unsoleing horses' feet for Ringbone. I condemn this *in toto*, and I think that you will agree with me. We ought to settle these questions, as well as others. Then there is the subject of drawing teeth. I hope that when these questions are discussed, personalities and strong language will be expunged from the debate, and that it will be carried on in a kindly spirit.

The PRESIDENT : We all know what cruel people there are in the world, and it is right that a Society of this kind should step in between the inhuman brute and his dumb animal. I admire the Society, and trust that the veterinary profession will hold out friendly hands to it. I will now call upon Mr. Briggs to make his reply.

Mr. BRIGGS : As the time at our disposal is so short, I will say as little as possible. Professor Pritchard stuck to docking pretty well, and I am glad that he so freely expressed his views. But the discussion appears to have gone entirely wrong, and upon a different line to that which was in my mind when I wrote my paper. I will not dwell upon what Professor Pritchard has said about docking. I think that this agitation will prevent a good many from docking horses where they would otherwise do so. But if I have a mare which, although she may not kick, yet switches her tail, or carries it in a crooked manner, I will dock her, in spite of Mr. Colam or the Society. We have not heard anything about fashion to-day. You hear people talk about the British public being educated to the ideas of the Society for the Prevention of Cruelty to Animals. The fact is, that docking is more in vogue now than it was a few years since. As to the cutting of dogs' tails, alluded to in this discussion, do we do it? No. It is done by the dealers. I distinctly think that Mr. Colam has no right to say to me that I am not to dock a horse. We should judge for ourselves. Mr. Colam says that he is very glad to learn from veterinary surgeons. Does he act upon their suggestions when the facts of a case are against him? With regard to the suggestion of the President of the Lancashire Veterinary Medical Association that a local committee, with veterinary surgeons upon it, should be formed in each district, Mr. Colam says that it would be impossible to form these committees to go into these matters. As to this, I would say that his own committee exists, and I do not see why we should not have the others. It is all very well for him to say that doubtful cases are always submitted to veterinary surgeons. I must be permitted to tell him that he is mistaken. They take a man to the police-court, lock him up, and try the case on the same day. One morning in this month, to my own knowledge, a man was marched off and fined ten shillings and costs, there and then. Then, again, when a charge is submitted to the Society, it sends some one to inspect, perhaps, and he takes off a horse's shoe, or something of that kind, without consulting any one. Dr. Fleming takes a stand which I am pleased to say that very few in our profession do. He also says that in Yorkshire the cart-horses are docked, but that in Lincolnshire and Kent they are very often undocked. I do not think that the men in Yorkshire are harder-hearted than those in Lincolnshire or Kent. I will finish my remarks by quoting the last paragraph in my paper : "I hope, too, that it will not be much longer necessary for veterinary surgeons to appear against the Society, to keep its officers from exaggerating cases."

Professor AXE : I regret very sincerely that this discussion should have taken such an unfortunate turn, but it would be a pity if it turned out to be in-

operative. I trust that we shall go away wiser and better men, more fully understanding the little knotty points of the question of docking. It is to be hoped, too, that the Society for the Prevention of Cruelty to Animals has now a better appreciation of the views of the veterinary profession upon this subject, and that the discord of to-day may lead to harmony to-morrow. I think that we should pass a resolution as follows: "That in the opinion of this meeting, the operation of docking horses is a means of averting danger to man, and conducive to the benefit of horses and is therefore a necessary operation."

Mr. HUNTING (of London): I propose that we read "when," instead of "is."

Mr. J. LAMBERT: We cannot go anywhere without seeing that docking is carried out to a ridiculous and, in some cases, indecent extent. I shall propose to put an amendment to the effect that "This meeting condemns the indiscriminate and unnecessary docking of horses."

Some consultation then took place, as a consequence of which Mr. Lambert agreed not to press his amendment.

The following expression of opinion was then read by Professor Axe, and agreed to by the meeting:—

"That, in the opinion of this meeting, the operation of docking horses is a means of averting danger to man, and is not cruel when shown to be necessary."

A vote of thanks was then, on the suggestion of the President, awarded to the Governors of the Victoria University, for the free use of the hall for the meeting.

Professor WALLEY then said: I am very pleased that it has devolved upon me to propose a vote of thanks, which I am sure will meet with your cordial approval. It has been a great pleasure to me to come to Manchester, and assist in your deliberations. I ask you to pass a unanimous vote of thanks to Mr. Greaves, our President. You will agree with me, that he has done all he could to make our meeting a success. I only fear that our Lancashire friends have been too kind, and have established a precedent which other towns will not be able to follow; nevertheless, I am sure we shall be very pleased to do what we can when the day comes round for you to meet in Scotland.

Professor WILLIAMS: I can endorse every word which Professor Walley has said about our President. I congratulate Mr. Greaves upon one of the crowning successes of his life. He has worked hard for our profession during a practice of fifty years. I beg to second Professor Walley's proposition that a vote of thanks be accorded to our President.

This motion was passed unanimously.

Mr. GREAVES: This has been one of the proudest days of my life. It is a source of the deepest gratification to me to be rewarded by your thanks. I thank you, gentlemen, from the bottom of my heart. Your thanks are not due to me alone, but to others who have assisted me in endeavouring to make this meeting a success.

A vote of thanks was then passed to the writers of the Papers, the Provisional Committee, the Secretaries, and to Professor Tuson.

During the meeting the following subjects were brought before the members of the Association:—

1. *The question when and where the next General Meeting of the Association should be held.*

The PRESIDENT: At the last Council Meeting, Edinburgh and Birming-

ham were selected, but the vote of that meeting was in favour of Edinburgh. This is simply the recommendation of your Council, and it is for this meeting to approve of it or not as it sees fit. The matter is in your hands for you to decide by vote.

Mr. PETER TAYLOR : At present we are few in number, but let us hope that this will not long be the case. Although I intend to propose Edinburgh as the place for our next meeting, I think that it is necessary, first of all, to come to a definite conclusion as to how often these meetings should be held. In my opinion, they should take place every two years in some large town. I think a strong reason why we should select Edinburgh is, that the object of this Association is to diffuse knowledge north, south, east, and west, and I hope that Professor Williams will be the President, for a more active and zealous man we have not in the profession.

Mr. MOIR : I shall have much pleasure in seconding the motion that the next meeting be held at Edinburgh ; and I also hope that Prof. Williams will be President.

Mr. STANLEY : We have received many replies to a circular issued to the veterinary surgeons of the Midlands, in accordance with the suggestion at the last General Meeting, and these answers are in favour of the next meeting being held at Birmingham. As an amendment, I therefore propose that it be held at Birmingham next year.

Mr. GREAVES : Before we proceed farther, I should like to ascertain your opinion as to whether the meetings shall be held every year, or every two years. In Scotland we have not many members of this Association, but in the Midland Counties we have a large number.

Dr. FLEMING : The object of our Association should be to obtain the largest possible number of members at its meetings. It is evident that if we go to Scotland, we shall have a very small attendance. We have only seven gentlemen in Scotland who belong to this Association. The Midland Counties have loyally supported us. Birmingham only lost the choice last year by one vote. I think that we are in duty bound to go to the place which offers us the greatest prospect of a successful meeting. With regard to the interval between our meetings, I think that it should be two years. Looking at the paucity of subjects for discussion, I am of opinion that we should run ourselves too hard if we held annual meetings. But in order not to frustrate any plan for the Edinburgh one, two years hence, I suggest that the question of meeting every two years be deferred until next year.

Professor WILLIAMS : I am very sorry that my name has been mentioned in connection with the meeting in Edinburgh. The question is whether our meetings shall take place annually, or every two years. My opinion is that the latter would be the best. I may state here that we in Scotland are inclined to think that you in England have a tendency to give us the "cold shoulder" ; that you appropriate to yourselves meetings in London, Manchester, and now in Birmingham, and that the reason why you have so few Scotch members is that you do not come among us. Look at the last annual meeting of our local society. We had eighty members at the dinner, and more than that at the meeting.

Mr. BANHAM : I think I ought to inform this meeting that no one section of our profession was excluded when this Association was formed. *An invitation to join the Association was sent to every member of our profession in England, Scotland, and Ireland, and also to every holder of the veterinary certificate of the Highland and Agricultural Society who was not a member of the Royal College of Veterinary Surgeons.* No answers, however, were received from any of the Highland and Agricultural Society's graduates who are not members of our Collège, and very few from Scotch veterinary surgeons at all. As to the place of meeting next year, the Mid-

land Counties' Society have invited us, and we ought to give the preference to them on that account. As Dr. Fleming says, it is useless to go where we have so few members. I may add that I personally asked many of our Scotch colleagues to join us, which is more than I did in the case of Englishmen. I say this in order to show you that Scotchmen have not been treated coolly in any way by the originators of your Association ; and I am quite sure that none of us Englishmen wish to do so. I think we ought to look at our profession as such, and not from a national point of view at all. With regard to subjects for discussion there are plenty, but the difficulty is to find men to take the trouble to write ; and to have meetings we must have essayists.

Mr. WOLSTENHOLME : I can also vouch that the Provisional Committee have not been remiss. Every member of the profession in England, Ireland, Scotland, and Wales has been invited to join the Association and attend this meeting and dinner this evening.

Mr. EDGAR : I should like to remark that we can hardly look upon ourselves as a progressive Association if, after holding two annual meetings, we should fall back into biennial ones. If there is a demand, we invariably find a supply. I do not believe that a healthy interest will be kept alive in the Association if the meetings are only held every second year.

Mr. HURNDALL : It seems to me most unfortunate that the proposition for meeting to be held every two years should have emanated from Dr. Fleming, who has always shown himself to be desirous of forwarding the interests of our profession. I do not agree with him in this ; for it appears to me that the adoption of this course will be likely to lessen the influence of the Association. I do not believe that there would be a lack of subjects, and I am sure that we should find men able and willing to come forward and write papers for discussion. I think that it would be unwise to meet at Edinburgh next year ; for the Association is young, and that city is distant. Still, I should like to see the meeting held there on as early a date as possible ; although I think that Birmingham should be the place selected for next year's meeting.

Dr. FLEMING : I did not intend to bring up the feeling of nationality. What I say is, that we have only a few members in Scotland who belong to this Association ; and we have had no invitation from Scotland. The success of this Association depends upon its *local* influences. The work here (in Manchester) has been well done by the local committee. I think that we have heard a great deal too much about nationality, and I entirely disclaim any intention of putting a slight upon our Scotch brethren.

The CHAIRMAN then demanded a show of hands, with the view of ascertaining whether the next general meeting should take place at Edinburgh or Birmingham. It was found that seventeen were in favour of Edinburgh, and twenty-two for Birmingham. The latter city was accordingly chosen.

Mr. W. A. TAYLOR proposed that the next general meeting of the National Veterinary Association be held some time during the year 1885.

Mr. BANHAM seconded the resolution, which was duly carried.

2. Date of Meeting.

The PRESIDENT thought that as many unforeseen circumstances might arise, the date of the meeting might be fixed by the officers at some future time.

3. Election of President.

Mr. GREAVES proposed, and Mr. STANLEY seconded the motion, that Mr. H. Olver, of Tamworth, be elected President for the ensuing year.

This was carried unanimously.

4. *The election of Dr. G. Fleming, F.R.C.V.S. (ex-President), a Life-Vice-President of the National Veterinary Association.*

Professor MCCALL said : It is with the greatest pleasure that I rise to propose that Dr. Fleming be appointed a Life-Vice-President of this Association. There is no real necessity that I should add more, in order to induce you to accept this proposition. Dr. Fleming has done more for the veterinary profession than any man living, or I may say, dead. He is a "writer," and he takes a very lively interest, not only in all connected with the Council of the R.C.V.S., but he is one of our most active examiners. He occupies a very high position indeed in connection with our profession in the army, and he has broken down the barrier that has hitherto existed, to prevent members of the veterinary profession occupying honourable positions in the army. I could say a great deal more in praise of Dr. Fleming, but it would be out of place in his hearing.

The PRESIDENT : I can endorse every word which has just fallen from Professor McCall. We all know how Dr. Fleming has laboured for the good of our profession. He has lately been elected a Governor of the Royal Veterinary College—an honour which only two or three of our profession have obtained. I am quite sure that you will have very great pleasure in passing this resolution.

The motion was unanimously adopted.

Dr. FLEMING : Mr. President and gentlemen, I thank you most sincerely for the high honour you have conferred upon me. It is always painful to listen to one's own praises, and I must confess that I do not deserve all that has been said about me. I need not tell you how anxious I am that our profession should advance, and that workers should arise on every side. The only way is to encourage workers as much as we can. There have been times when I had not much encouragement, but I was animated by a feeling that I had the support of the profession. It is with the greatest gratification that I find that the little I have been able to accomplish—far less than I should have liked—has been so well received by you. I shall value as long as I live the great honour you have done me, and shall always support our profession to the best of my ability.

Mr. OLVER : The next business is the election of six members of Council. I beg to propose six names which will—I think—be well received by you ; they are Messrs. T. Briggs (Bury), C. Cunningham (Slateford), W. Dale (Coventry), T. Lambert (Ireland), H. G. Lepper (Aylesbury), Captain B. Russell (Grantham).

Professor WALLEY : I have very great pleasure in seconding Mr. Olver's proposition, which is an excellent one. We all know the gentlemen who have been named.

The President having put the motion to the meeting, the above-mentioned six gentlemen were declared unanimously elected *Members of Council* for the ensuing year, 1885.

LIST OF MEMBERS OF THE NATIONAL VETERINARY ASSOCIATION.

Those marked (1) have served as President.
 " (2) " as Vice-Presidents.
 " (3) " on the Council.
 " (4) " as Treasurer.
 " (5) " as General Secretary.
 " (6) " on Provisional Committee.
 " (7) " as Local Secretary.
 " (8) have written papers for discussion.
 (F) signifies Fellow of the Royal Coll. Vet. Surgeons.

- Almond, N., Chipping Ongar.
 Anderton, J. W. (F.), Skipton-in-Craven.
 Awde, W., Stockton-on-Tees.
 (3) Axe, J. M., Doncaster.
 (6) Axe, J. W., Professor, R.V.C.
 (3. 6) Bain, Alex., Liverpool.
 Baker, E. W., Liverpool.
 (3. 5. 6) Banham, Geo. A. (F), Cambridge.
 (6) Barford, J. D., Southampton.
 Barnes, C. T., Cheadle.
 Barrett, W. F., New Cross, S.E.
 Batt, Thos., London.
 (6) Batt, E. E., The Brown Institution.
 Bell, J., Carlisle.
 Blakeway, F. (F), Stourbridge.
 Bland, Geo., Alfreton.
 Blunt, H., Lutterworth.
 Blenkinsop, L. J., London.
 Bloye, W. H., Plymouth.
 Bower, Wm., East Rudham.
 (3) Bradshaw, H. K., Portrush.
 (3. 6. 8) Briggs, Thos. (F), Bury.
 (3. 6) Broad, Alf. (F.), London.
 Broad, Arthur " "
 Broad, J., " "
 (3) Broad, T. D. (F), Bath.
 Brookes, A., Pilkington, near Manchester.
 Brookes, Wm., Pilkington, near Manchester.
 Briggs, A. W., Halifax.
 (3) Broughton, W. (F), Leeds.
 Brown, J. H., Wanstead.
 Burnett, J., Maybole, Ayr.
 Burrell, T., London.
 Cameron, John, Berwick.
 (3) Carless, W. J., Lincoln.
 (3) Carless, W., Stafford.
 Carter, J. S. (F), Bradford.
 Carter, G. W., Keighley.
 Cartwright, H. J. (F.), Wolverhampton.
 Challinor, C. E. (F), Pendlebury.
 Cheesman, E. T. (F), A.V.D.
 Chesterman, T. G., London.
 Coe, Jos., Stoke-upon-Trent.
 Cope, A. C., Veterinary Department, Privy Council.
 (6. 8) Cox, J. H., A.V.D.
 (6) Cox, J. Roalfe (F), London.
 (3) Cunningham, C., Slateford.
 Cupiss, F., Diss.
 Darwell, A. H., Northwich.
 Davies, T. J., Bootle.
 Davis, Herbert, Blackheath.
 Dawson, J., Carlisle.
 (3) Donald, J., Wigton.
 Dudgeon, D., Sunderland.
 Duguid, W. (F), Veterinary Department, Privy Council.
 Dyer, H., Leatherhead.
 Edgar, H., } Dartford.
 (6) Edgar, W. Alston, }
 Edwards, R. C., Chester.
 (6) Elam, C. W., Liverpool.
 (3) Elphick, G., Newcastle-on-Tyne.
 Elphick, J. E., Ash Sandwich.
 (6) Farrance, F., Eastbourne.
 (6) Faulkner, Ed., Manchester.
 (6) Ferguson, Hugh, Warrington.
 Ferguson, John H., Leeds.
 (2) Fitzwygram, Sir F., Bart. (F).
 (1. 2. 3. 6) Fleming, Geo. (F), LL.D., P.V.S., A.V.D.
 Fletcher, T., Sheffield.
 Frost, Thos. A., Hounslow.
 Fulton, D., Mullingar.
 Garside, F., Disley.
 Garside, W. F., Professor, Cirencester.
 (6) Gibbs, J., Bromley. [chester.
 Goodacre, Geo., Crowle.
 Graves, Wright, Histon, Cambs.
 Gray, Alex., Prof. Royal (Dick) Vet. College.
 Gray, G., Romford.
 (1. 2. 3. 6) Greaves, Thos. (F), Manchester.

- (3) Gregory, T. D., Bideford.
Greenhalgh, W. T., Leeds.
T. P. Gudgin (F), I.V.S., A.V.D.
Hammond, John, Bale.
(6) Hancock, W. J., London.
Harpley, Matthew (F), A.V.D.
Haslam, J., Manchester.
(3) Heath, J. P., Exeter.
Hedley, Matt. (F), Dublin.
Hewson, Frederick, Royston.
Higgott, T. H., Bakewell.
Hills, H., Cambridge.
Hills, O. J. (F), Leamington.
Hogben, H. T., Folkestone.
Hollingham, E. A., Red Hill.
Holmans, S. E., { Lee Green,
Holmans, S. G., { London.
(3. 6) Hopkin, Tedbar (F), Man-
chester.
(6) Howell, J. (F), Rochdale.
Huband, T. A., Cheltenham.
Humphries, G., Manchester.
(3) Hunter, H., Newcastle.
(2) Hunting, Chas. (F), { South Hetton
Hunting, C. S., { Fence Houses.
(6) Hunting, W. (F), London.
(6) Hurndall, J. S., Liverpool.
Ingersoll, F. R., Lewisham.
(6) Ingram, J. W., Manchester.
James, J. C., Thornbury.
(3) Kidd, H., Hungerford.
Killick, T. H., A.V.D.
Kitchin, E., Liverpool.
(6) Lambert, J. (F), I.V.S., A.V.D.
(2) Lambert, T. D. (F), Dublin.
(3. 6) Lawson, Alex., Manchester.
(2. 6) Lawson, John, Manchester.
Leather, Arthur, }
Leather, Joseph, } Liverpool.
(3. 6) Leather, Wm. (F), }
Lee, Wm., High Wycombe.
(3) Lepper, G. A. (F), }
Lepper, H. S., } Aylesbury.
(3) Lewis, Thos. H., Prof. New Vet.
Coll.
(3) Lewis, Walter, Crewe.
Litt, J., Bolton.
(3) Litt, W. E., Shrewsbury.
Lock, S., Manchester.
Lomas, W., Buxton.
Longhurst, W. H., Hull.
Low, Frederick, Norwich.
Lupton, J. I. (F), Richmond.
MacCallum, A. J., Edinburgh.
(3) Mackinder, J. (F), Peterborough.
(3) Malcolm, John, Enniscorthy.
Marshall, F. F., A.V.D.
(3. 6) Martin, J. B., Rochester.
Matthews, I. (F), A.V.D.
Mayor, G. G., Kirkham.
(3. 8) McCall, J. (F), Principal, Glas-
gow Veterinary College.
(6) McGill, D., London.
Mellett, E., }
Mellett, E. J., } Henley-on-Thames.
Miller, G. B., Dublin.
Moir, Chas. W., Cardiff.
(3. 6) Moore, J. W. T. (F), Birken-
head.
Moore, T., London.
Mulvey, W. J., Durham.
Nettleship, E., F.R.C.S., London.
Nuttall, E., Preston.
Oliver, Geo. A. (F), A.V.D.
(2. 3) Olver, H. (F), Tamworth.
Olver, T. (F), Truro.
Over, Alf., Rugby.
(3) Overed, J. D., Blofield.
Parr, J. G., Leicester.
Patterson, G. T., London.
(5. 6. 7) Penberthy, J., Lecturer,
R.V.C.
Polding, J. A., Bury, Lancashire.
Preston, J. (F), Mallow.
Price, T. S., London.
(2. 3. 6. 8) Pritchard, Wm., London.
Proctor, F., Manchester.
(6) Reekie, W. W., London.
Reynolds J. H., Daventry.
(3) Reynolds, R. S., Liverpool.
Ritchie, J., Forfar, N.B.
Roach, W., Exeter.
Roberts, Richard, Kendal.
(3) Robertson, Wm. (F), Principal,
R.V.C.
Rock, M. M., Chislehurst.
Rostron, J. A. (F), A.V.D.
(6) Rowe, J., London.
Runciman, T., Market Deeping.
(3) Russell, B. H. (F), Grantham.
(2. 3) Rutherford, R., Edinburgh.
Samson, F. G., Mitcham.
Santy, A. H. (F), Norwich.
Sartin, S. R., A.V.D.
(6) Shaw, H. K., London,
Shave, E. S., Lecturer, R.V.C.
(6) Sheather, Chas. (F), London.
Shillingford, R. F., Buckingham.
Shipley, W., Great Yarmouth.
(2. 3) Simcocks, T. H., Drogheda.
(6) Simpson, C. H., Windsor.
Slocock, S., Hounslow.

- (3) Smart, W. W., Newcastle-on-Tyne.
 Smith, Benjamin, Barnsley.
 (6) South, W. A., London.
 (3) Sperring, J. J. (F), Dublin.
 Stanley, E. (F), Warwick.
 (3) Stanley, H. M., Birmingham.
 Steel, J. H., A.V.D.
 Stephenson, C. (F), Newcastle-on-Tyne.
 Stephenson, R., Longton.
 Stock, R. A. (F), Lewis.
 Tayler, Rowland, Colchester.
 Taylor, F. W., Cheltenham.
 Taylor, J. B., Ashton-under-Lyne.
 (3. 6) Taylor, Peter (F), Manchester.
 (2. 3. 6) Taylor, W. A. (F), Manchester.
 (3) Thomas, W. H., Plymouth.
 Thompson, Hy., Aspatria.
 Toop, T. C., Knaresboro'.
 (3) Trigger, R. C., Newcastle-under-Lyne.
 Unsworth, J. B., Market Drayton.
 Villar, Sidney, Harrow-on-the-Hill.
 Walker, J. P. S., Oxford.
 (3) Walker, Peter, Bradford.
 (3. 8) Walley, Thomas, Principal, Royal (Dick) Veterinary College.
 Wallis, Page, Cambridge.
 (6) Walters, W. B. (F.), Professor, A.V.S.
 Waters, Geo., Cambridge.
 Welsby, J. H. (F), } Liverpool.
 Welsby, W. M., }
 (3. 6) Whittle, Wm. (F), Manchester.
 Wiggins, J., Market Harboro'.
 Wilkinson, A., Ashton-under-Lyne.
 (3. 8) Williams, Wm. (F), Principal, New Veterinary College.
 Wilson, Wm., Berkhamstead.
 (3. 6. 7) Wolstenholme, J. B., Manchester.
 (3. 6) Woodger, Joseph, London.
 (2. 6) Woods, Wm. (F), Wigan.
 (6) Woods, W., Junr.
 (3. 4. 6) Wragg, Frank, W., London.
- Total No. of Members : 221.

Army Veterinary Department.

Gazette, June 23rd.

Veterinary Surgeon William J. Masters, half-pay, has been placed on retired pay. 17th June, 1885. The following Veterinary Surgeons to be Veterinary Surgeons (First Class):—Murray Anderson, James Mills, Thomas Flintoff. 23rd June, 1885.

Gazette, June 26th.

The following Veterinary Surgeons on probation to be Veterinary Surgeons:—Patrick W. Dundon, George C. O. Fowler, John A. Meredith. 10th December, 1884.

The thanks of the Madras Government have been conveyed to Veterinary Surgeon Steel for his very able report on the causes of an outbreak of an enzootic in Burmah. Dr. Evans, the Inspecting Veterinary Surgeon of that Presidency, has recorded his opinion that "it is an exceedingly valuable report, certainly the best contribution to veterinary pathology ever made in India." He adds that the report will be well nigh invaluable in the Punjab Frontier Force, where the horses suffer much from the disease known by the name "Surra." Mr. Steel is to see to his report passing through the press, and has been recommended to the Government of India for an honorarium as an encouragement for his successfully investigating a most obscure disease.

In order to avoid misconception, and to give authoritative and official weight to what has hitherto been left entirely to the Principal Veterinary Surgeon, the Horse Guards and War Office have assented that for the future the following regulations will be observed in the appointment of veterinary surgeons to the Army Veterinary Department, and in the examination of veterinary officers to the grade of First Class and Inspecting Veterinary Surgeon.

Candidates for Admission.

1. The minimum age of candidates is twenty-one years, and the maximum age twenty-six years, except in special cases or on urgent occasions, when the latter limit may be exceeded. Candidates must be unmarried.

2. Every candidate must be a Member of the Royal College of Veterinary Surgeons.

3. He will be required to forward the following certificates, prior to examination, to the Principal Veterinary Surgeon, War Office :—(a) A certificate of birth or baptism, or other satisfactory proof of age. (b) Certificates of moral character from clergymen or others in a position to testify, and whose evidence may be deemed satisfactory; also from the Principal and Professors of the College at which the candidate has been professionally educated.

4. Every candidate will undergo a medical examination in order to ascertain his state of health and physical fitness.

5. The professional examination will be in two parts, written and practical. The written examination will embrace the following subjects :—(a) Anatomy; (b) physiology; (c) histology; (d) pathology, horse; (e) pathology, cattle; (f) surgery; (g) chemistry; (h) materia medica; (i) toxicology; (j) botany; (k) sanitation; (l) dietetics; (m) principles of shoeing.

The practical examination will be conducted by a Board of Veterinary Officers, and will include: (a) Examination of horses as to soundness; (b) examination of horses as to age; (c) exterior of the horse, with regard to points, marks, seat of disease, conformation necessary for different kinds of military service, etc. (d) operations; (e) prescribing, compounding, and administering medicines.

Rules for the Examination for Promotion to the Grade of Veterinary Surgeon (First Class).

The examination for promotion to the grade of Veterinary Surgeon (First Class) will be a written one, and will include the subjects in the same examination for admission to the Department, with the addition in section *d* (cattle pathology) of the diseases peculiar to the camel and elephant, in section *k* of sanitation in India, and in section *l* of dietetics in that country.

Rules for the Examination for Promotion to the Grade of Inspecting Veterinary Surgeon.

The examination for promotion to the grade of Inspecting Veterinary Surgeon will be a written one, and be based chiefly on subjects connected with veterinary administrative duties (as laid down in the Army Veterinary Regulations) at home and in India, and also with regard to administrative duties in the field.

The following scale of pay for officers of this Department in India came into effect on the 30th April :—Principal Veterinary Surgeon in India, Rs. 1,220 per month; Inspecting Veterinary Surgeon, Rs. 1,020 per month; Veterinary Surgeon (First Class), Rs. 600 per month. After five years' service as such, Rs. 650 per month. After ten years' service as such, Rs. 750 per month. Veterinary Surgeon under five years' service, Rs. 400 per month; after five years' service, Rs. 450 per month; and after ten years' service, Rs. 500 per month.

The Heavy Camel Corps returned from the Nile Expedition July 3rd, and was inspected by the Queen at Osborne, Isle of Wight, on the following day. After the inspection, the officers were presented to Her Majesty, among them being Principal Veterinary Surgeon Walters and Inspecting Veterinary Surgeon Hinge.

Obituary.

The following deaths have been reported :—JAMES HARRIS, M.R.C.V.S., retired from the Indian army, graduated in 1827. HENRY R. STEVENS, M.R.C.V.S., London, graduated in 1834; and CHARLES MARKHAM, M.R.C.V.S., Stafford, a graduate of 1866.

JAMES T. TWISS, a very promising young officer of the Army Veterinary Department, died on June 22nd, at the early age of twenty-three years. Entering the army in 1883, after passing an excellent test examination, on undergoing the prescribed six months' probationary service he went to Bombay. Owing to a tumour forming on his lower jaw, he was invalided home in January of this year for operation, and soon after arrival the growth was removed. For some time he appeared to be cured, and in April he attended the levée held by the Prince of Wales in Dublin Castle. Immediately after a new growth was discovered, and a second operation had to be undergone. From this he suffered much pain, and gradually sank from exhaustion at his residence, in Ashford, county Wicklow.

The veterinary profession has lost one of its most zealous and illustrious members by the death of M. AUGUSTE ZÜNDEL, principal or superior veterinary surgeon of Alsace-Lorraine, the melancholy event occurring at Strasbourg on June 18th. Our esteemed friend and colleague, who was only fifty years of age when he died, had long won a foremost place among the most advanced of the Continental veterinarians by his numerous scientific writings, continued over a long period, in German and French journals, his intimate knowledge of several languages giving him further facilities in this direction. He translated Leyh's "Veterinary Anatomy" from German into French, but his most valuable work, and that by which his name will be longest remembered, is his edition of D'Arboval's "Dictionnaire de Médecine, de Chirurgie, et d'Hygiène Vétérinaires," a work which should really have appeared in his own name alone. His services were largely recognised by medical and veterinary societies. He was an Honorary Associate of our Royal College, and had decorations from several monarchs.

Veterinary Surgeon Fooks, 2nd United States Cavalry, sends us the following :—

"I regret to have to report the death of JAMES HUMPHRIES, V.S., of the 2nd U.S. Cavalry, who died in San Francisco, Cal., on 31st December, 1884, from Glanders.

"Mr. Humphries came to this country from Bloomsbury, Manchester, England, and graduated from the Ontario Veterinary College in 1878. He moved to Hamsburg, Pa., and soon established an excellent practice. In 1879 he gave up this and entered the army service, being appointed veterinary surgeon to the 2nd Cavalry, and held that position until his death. He was highly respected by the officers of his regiment as a gentleman and skilful practitioner, and in his death the profession has lost one of its most valuable workers.

"It was Mr. Humphries' great object to promote the interests of the veterinary profession in the American army, and had he not been so soon cut off his efforts must have been attended with success.

"While holding a *post-mortem* on several glandered horses, it is supposed that he became inoculated with the virus through a cut on his finger."

Correspondence.

THE RELATION OF FUNGI TO BURSATTI AND OTHER CHRONIC ULCERS AND GROWTHS IN INDIA.

SIR, —It is still a debated point what signification is to be attributed to the fungi which are to be found scattered in variable numbers in many forms of Lupus, in Bursatti and human Cancer, in Keloid, in Ichthyosis, in Chronic Ulcers, and especially in *healthy* tissues which have been steeped in special fluids; since by some they are regarded as a passive accumulation of organisms which have settled from the air, and by others as the cause of production of the disease-process which they have been noticed to accompany. A series of observations which the writer has recently instituted on specimens from some of these disease conditions, as well as others by various observers both since and formerly, seem to throw light on the problem. In specimens of Delhi Boil, Drs. Lewis and Cunningham ("Report on 'Oriental Sore,' or Lupus Endemicus," 1876) have already shown that fungi frequently grew in consequence of preparing specimens in special media; and by their development on healthy surfaces, as in simple wounds and ulcers of the horse, as shown by us (*Veterinarian*, January, 1885), and on healthy tissues hardened in many solutions they could be plainly seen to have been present, in these cases due to accidental circumstances. Quite recently Dr. Fenwick (*Lancet*, January, 1885) has obtained, in a 4 per cent. solution of cucain, a peculiar form of mould fungus which he is disposed to regard as the cause of the inflammation found set up in wounds after the use of this solution.

Those who believe in these fungi being the cause of the disease processes in which they have been met adduce no proof in support of their views beyond that of bare assertion.

The idea of many normal cells, capable of modification into the various forms of disease-producing particles, commends itself at once as a view likely to reconcile many differences, and be acceptable to practical as well as inductive physiologists, pathologists, and clinicians—Uskoff, Ponfick (*Virchow's Archiv*, 1881), Drs. Sanderson, Tilbury Fox ("Endemic Skin Diseases of India and Other Hot Climates," 1876), Beale (*Journal of Microscopical Science*, 1870), and others many years ago rejected an exclusively vegetable theory of morbid processes, which has not been controverted. A constitutional cause is doubtless at work, which attacks the cellular protoplasm, leading to the necrotic changes that are seen in this disease (Bursatti).

Professor Kraske (*Centralbl. für Chirurgie*, No. 48, 1884), of Freiburg, has explained the development of secondary nodules in internal organs in the course of cancerous disease as "the result of development of living epithelial masses detached from the primary growth, and implanted to internal structures, which present a favourable nidus for the retention and nurture of any wandering particle of carcinoma."

It is evident that the vitality of the protoplasm of the cells is impaired by perverted nutrition, which may be aggravated by many qualifying circumstances, but especially by injury or irritation, by climate, and amount of moisture in the air, etc.

Cawnpore, 15th June, 1885.

R. W. BURKE,
Veterinary Surgeon, A.V.D.

A MISTAKE.

DEAR SIR,—Allow me to apologise for a mistake which occurred in sending out the circulars of the National Veterinary Association to the Scotch and Irish members of the profession. My clerk unfortunately sealed the corner of the circulars, the consequence being that they were again charged for as letters on delivery.

G. A. BANHAM.

NON-PROFESSIONALS SELLING MEDICINE.

SIR,—In your next issue you would confer a favour by giving some information on the following:—

In country towns and villages, some shopkeepers, in addition to a good supply of strong whisky and ale, also supply their customers with medicine for horses and cattle.

They certainly do not say they are veterinary surgeons, nor do they use any letters after their names which may mislead the public into the belief that they are such; but all the same, they do a roaring trade in prescribing and dispensing such medicines, as also opium, belladonna, aconite, the mineral acids, etc.

Is there no law to prevent them doing this? and if so, how, or by whom can the necessary steps be taken? "INQUIRER."

[There is a law to prohibit the sale of poisons. The police should see it enforced. Apply to a magistrate.]

"KUMRI."

DEAR SIR,—In reply to the letter from Mr. Poyser in the June number of the VETERINARY JOURNAL, kindly permit me to assure that gentleman that I shall be happy to retract—as soon as he assures me, in courteous language, that I was mistaken.—Yours very truly,

65, Maryon Road, Charlton, S.E.

JOHN B. W. SKOULDING.

A CORRECTION.

IN the report of the proceedings of the Annual Meeting of the R.C.V.S., which appears in the June Journal, Mr. W. A. Taylor is represented, on page 417, as having said "his friend Mr. Ward." This ought to be, "his friend Professor Vaughan."

TO CORRESPONDENTS.

The report of the Southern Counties and the Lincolnshire Veterinary Associations, and communications from various correspondents, are held over until next month.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from E. R. Fooks, Fort Walla Walla, U.S.A.; C. Gresty, Newcastle-on-Tyne; A. Smith, Toronto; A. E. Hollingham, Redhill; J. H. Steel, Bombay; J. B. Gresswell, Louth; J. Macqueen, Glasgow; A. Shawcross, Louth; J. Donald, Carlisle; A. W. Hill, London; G. A. Banham, Cambridge; "Inquirer;" C. Hartley, Lincoln; J. B. W. Skoulding, Woolwich.

BOOKS AND PAMPHLETS: *K. Ossol*, Experimentelle Untersuchungen über die Anthraxvirus; *J. S. Hurndall*, Is Tuberculosis Transmissible through the Medium of Milk drawn from a Tuberculous Cow? *J. F. Allen*, Is Enteric Fever a Cattle Disease? *G. S. Heatley*, Practical Veterinary Remedies; *L. Brusasco*, Un Caso di Colemia Acuta da Policolia in un Cane; Annual Announcement of the New York College of Veterinary Surgeons.

JOURNALS, ETC.: *Revista Popular de la Exposicion Rural*; *Revista Argentina de Ciencias Médicas*; *Journal of Comparative Medicine and Surgery*; *Der Hufschmied*; *Recueil de Médecine Vétérinaire*; *Wochenschrift für Thierheilkunde*; *British and Colonial Druggist*; *Live Stock Journal*; *Clinica Veterinaria*; *Edinburgh Medical Journal*; *Kansas Live Stock Indicator*; *Chicago Live Stock Journal*; *Archiv für Wissenschaftliche*; *Österreichische Vierteljahresschrift für Wissenschaftliche*; *Repertorium für Thierheilkunde*; *Zeitschrift für Vergleichende Augenheilkunde*; *Archiv für Wissenschaftliche und Praktische Thierheilkunde*; *Animal World*; *Lancet*; *British Medical Journal*; *Mark Lane Express*; *Centralblatt für Chirurgie*; *Tidschrift für Veterinar-Medicin*; *American Veterinary Review*.

NEWSPAPERS: *Protestant Standard*; *York Herald*; *Leeds Mercury*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

SEPTEMBER, 1885.

SPAVIN.

BY G. A. BANHAM, F.R.C.V.S., CAMBRIDGE.

(Continued from p. 87.)

5. That the pain is due to the inflammation, the intensity of the one being equal to that of the other, although individual sensibility may govern this to a certain extent (Schütz, Dieckerhoff). Dieckerhoff says that when the inflammation in the bursa abates, and this becomes thickened, the pain ceases.

If the pain lasts for any length of time, the capsule of the joint is sure to become implicated, and the movement of this causes pain, so that when the bones become cemented together, movement is stopped and the pain also; but if this cementing of the bones is incomplete, pain may last for an indefinite time.

If the bone is affected, and it become dense and hard (osteosclerosis), the pain ceases; but should the inflammation be of a chronic character (as it usually is), the inflammation deep-seated and intense, then pain is present, but to what degree we are not prepared to say (Dieckerhoff).

The pain is most severe during extension of the hock, *i.e.*, when the foot is on the ground, and, as Schütz points out, it is this that causes spavined horses to have that snatching action of the limb which is so often seen when first put into trot after coming out of the stable, or put from the diseased side to the sound in a stall; whereas, Dieckerhoff says that the snatching action of the limb in Spavin is produced by inflammation of the bursæ. The

horse may walk sound, because he can more easily distribute the weight of the body to the outside of the hock and hoof, in doing which the point of the os calcis is thrown outwards, and, when the weight is taken off the limb, the ligament retracts, bringing the limb up with a jerk. This also explains why horses can turn easier to the diseased side than the opposite, because the weight is carried by the outside of the hock. Dieckerhoff also explains this snatching action in another way, viz., by shortening of the fascia on the anterior part of the limb, which is attached to the tendon of the flexor pedis, brought about by the horse standing with the hock flexed. Whereas, another theory of this jerking action is that it is due to shortening of the capsule and ligaments, as well as the fascia.

The fact that spavined horses sometimes move their hock stiffly—that is, extended both in work and rest—is due to the fact that the hyperostosis affects the anterior part of the hock, which, when flexed, produces pain; so the animal avoids flexing the joint.

Diagnosis.—In order to diagnose the presence of Spavin, it is important that three things should be taken notice of, viz.:—

1. To understand the various forms a natural healthy hock may assume.

2. The manner of going about the animal, and the various methods at our command to assist us to detect the pathognomonic signs.

3. The recognition of those deviations from the normal limb which may be mistaken for Spavin.

Dieckerhoff describes three forms, which the inner surface of a horse's hock may assume, compatible with health.

(a) *The common, or convex form* (or full hock), in which a slight convexity exists at the region of the inferior articulation.

(b) *The even, or slanting form* (straight hock), in which no such convexity exists, but is straight and even from above to below. Horses with so-called flat hocks present this form.

(c) *The conean form* (hollow hock) is that which is thicker above and below, with a concavity between them. There is frequently a concavity between the calcaneus and astragalus.

Dieckerhoff's experience led him to believe that the first was

most commonly affected with Spavin, the second seldom, and the third rarely or never.

The manner of going about a horse for the detection of Spavin is not only important for the safety of the veterinary surgeon, but also to show "horsemen" that we know what we are about. With your permission, gentlemen, I will explain what I mean by this, or you may misunderstand me, and interpret it wrongly. A horseman judges us *by his own knowledge*, which he learns by seeing others; therefore, what the majority of horsemen do themselves they will expect of us when they see us examining horses. Consequently, for us to be placed in the same category as horsemen, we must go about our animal as they themselves would, so that they may recognise us as being—what they boast of themselves—viz., practical men. If there are any additional ways of "going about" animals, we may make use of them, so long as they can be used without appearing awkward and out of place. The following are some of the general rules recommended for our guidance:—

1st. If possible, see the horse in the stable, and put it over from side to side in the stall or box.

2nd. Have both hocks sponged down on the inside, to place the hair smooth.

3rd. Have the horse led out, and walked and trotted from, towards, and past you, and view the action of the hocks, posteriorly, anteriorly, and in profile, as well detect any lameness, especially noticing the animal when turning.

4th. Place the animal on even ground with both hind limbs level, side by side, and look at the hocks from all points, and compare them with each other.

The best position for inspecting the most common seat of Spavin is, as Percivall says, "by the examiner standing by the side of the horse's (correspondent) fore limb," or by the side of the man placed in front of the horse's head, holding the left rein in his right hand, and the right in his left, near the bit. In this position the inner side of the hock may be traced by the eye, and compared with that of the other. Although this is the common position to detect Spavin, still, as we know that the enlargement does not always form here, the hocks must be viewed from the side for anterior enlargements, and from behind for elevations at

the posterior part. However, there are occasions when it may be necessary to take an anterior view of the two hocks at the same time ; this may be done by looking at them from the front, between the two fore-legs of the animal. Next, both hocks should be felt by the fingers, and compared with each other ; but this requires a little tact.

All veterinary surgeons do not use both of these methods for detecting Spavin ; some (Percivall, etc.) prefer their eyes, whilst others (Dick, etc.) depend upon their fingers. However, both methods are useful if properly acquired—the one for detecting unevenness and want of symmetry, the other for determining the nature of the enlargement.

There is no one symptom of the disease which may be said to be diagnostic of Spavin, except, perhaps, the bony enlargement itself of the infero-internal part of the hock ; but even this, as we shall see, is not infallible. We may have Spavin with or without lameness, and we have severe lameness without a vestige of an enlargement to be seen (occult Spavin). It is only when we consider the various symptoms, together with the exostosis, and the other parts of the limb, that we are enabled to conclude that Spavin is the cause of the lameness.

The abnormalities which may be mistaken for Spavin are :—

1. Enlargements on the inferior part of the internal aspect of the hock, due to (*a*) distension of the bursa situated at this part, (*b*) thickening and induration of the subcutaneous tissue and ligaments found here, (*c*) excessive development of the ridge of the cuneiform bones of the hock (coarse hocks), (*d*) inflammation of the skin at this part (œdematous), (*e*) thickening of the skin from the action of some previous irritant:

2. The “ catching action ” of the hock, when flexed, may be due to (*a*) Stringhalt (which may or may not be accompanied by Spavin), (*b*) a shortening of the fascia on the inner side of limb, producing a straddling, stiff action when the animal is first brought out of the stable, (*c*) shortening of the fascia on pelvis and femur, often seen in horses used for heavy work:

3. The toe of the hoof may be worn away from any malformation of the limb, or disease of other joints and tendons, which prevents the toe being raised from the ground.

4. It is often difficult to differentiate lameness produced by other causes when a fully-developed Spavin is present. Therefore, perhaps it will not be out of place for us to compare some of them :—

1. *Hip-Lameness* causes a stiffness of the whole limb ; the toe is dragged along the ground, and there is usually tenderness, heat, and swelling at the hip.

2. In *Patella Lameness*, the pain is greatest when the limb is extended and the foot cannot be brought forward.

3. In *Inflammation* of the true hock-joint (tibio-astragalean), there is swelling, pain on pressure, and heat, followed by shortening of the capsule, producing a stiffness of hock action, and it is often difficult to say which disease is the cause of pain when Spavin is also present.

4. Chronic inflammation of the sheath of the flexor pedis accessorius is not a very common disease, but, if present, it might cause some anxiety to the practitioner in deciding the seat of lameness. The history of the case might assist our diagnosis in such cases.

5. *Sprain of Flexor Tendon and Sheaths* would only cause a difficulty before the swelling and heat occurred.

6. *Ringbones* may present difficulties in diagnosis before the exostosis takes place.

Prognosis.—No one can give any opinion for certain about the usefulness of a horse with a spavin, because some horses with large spavins do lots of work and never go lame, whereas others with small “jacks” do light and easy work tolerably well, but will not stand a severe day’s work without being very lame on the following day. However, as we (veterinary surgeons) have to give opinions upon this matter, it is as well we should be as unanimous as possible, and, for our guidance in future, I will ask you to make this one of the points of discussion to-day, and, with permission, I will suggest the following as a basis :—

1. *Age.*—Young horses are more liable to go lame with work than aged, but they are more amenable to treatment.

2. *Formation of Hock.*—Horses with naturally good-shaped hocks are more likely to get sound quickly, and remain so, than are the reverse.

3. *Position of Spavin.*—Those situated internally are less likely to interfere with the horse's usefulness than those situated anteriorly, but when situated at the posterior part of the internal surface of the hock, they rarely produce inconvenience for any length of time.

Then, again, "low spavins"—that is, those situated between the metacarpals and lower cuneiform bones, or between the two cuneiforms—are less likely to produce chronic lameness than "high spavins," or those implicating the large cuneiform and astragalus, and when the true hock joint is diseased there can be little hope of the lameness ever ceasing.

4. If the bony enlargement (Spavin) produces other diseases, such as contraction of suspensory ligament and chronic disease of the fetlock, or causes the foot to rotate on the ground, so that the animal can put the weight on the outside of the joint, our prognosis should be unfavourable.

5. Spavin accompanied with Stringhalt is detrimental.

6. Spavin is of less importance in horses with good constitutions, quiet temperaments, and good feeders, than it is in those with a spirited, nervous, and excitable temperament and light feeders.

7. *Work.*—Spavin is of more importance for fast and heavy work than it is for slow and light work.

8. *Shape and Make.*—Spavins are more favourable in well-made, compact, well ribbed-up horses than they are in leggy, long-barrelled, badly ribbed-up animals.

Treatment.—The first thing to endeavour to do is to allay the inflammation and pain. This is usually brought about by rest, physic, and local fomentations; and next to bring about complete anchylosis of the joint by counter-irritation.

Of all the means at our disposal for removing the pain of Spavin, *rest* is the most important. This alone will sometimes do all that is required, and without it no other method of treatment can be expected to be followed by any beneficial results.

As a matter of fact, the treatment of Spavin to-day is, as Percivall said in his time, "the very same as our forefathers employed with most success for the cure or relief of spavined horses."

We may here observe that Spavin has been said to be an incurable disease (Coleman), and when we define this term to mean a restoration of *structure* as well as *function*, it is true; but should we restrict the meaning of the word to the restoration of function alone, then we may say with truth that Spavin can be cured (Percivall), and, as experience teaches us, that when the joints are immovable this end is attained. It naturally forms a basis for treatment of Spavin.

Practically, then, we may divide the treatment of Spavin into two forms of counter-irritation, viz., firstly, applying irritant agents to the skin; and secondly, to operations.

The external irritant applications may again be divided into two kinds: (1) Vesicants; (2) Corrosive substances.

Vesicants are ointments, etc., of biniodide of mercury, iodine, iodide of potassium, cantharides, euphorbium tartarus stibiatus, bichromate of potash. They often destroy the hair follicles and leave bald patches.

Corrosive Substances are hydrarg. bichloridum dissolved in spirit or mixed with lard, and painted over the part; acidum arsenicum, ol. crotonis, acidum sulphuricum, but these always cause necrosis of the skin and blemish.

SURGICAL OPERATIONS consist in (1) placing caustics under the skin, (2) setons, (3) actual cautery, (4) chiselling the enlargement off the hock, (5) opening the bursa under the medial branch of the flexor metatarsi, (6) dividing the tendon of the flexor metatarsi on the inner side of the hock, (7) periosteotomy, (8) neurotomy.

1. Placing caustic substances under the skin appears to have been first introduced by W. Osmer in 1766, who used arsenic or corrosive sublimate made into a paste with gum arabic, and is still used by some at the present day.

2. *Setons*.—Professor Sewell appears to have been a great promoter of this kind of treatment, and Percivall says they are only useful for external or periosteal Spavin, the iron being best for articular Spavin.

3. *The actual cautery* may be used in various ways.

(a) *Distance Firing*.—By holding a hot iron a short distance from the skin, but not touch it so as to scorch, and not burn the skin.

(b) *Firing in lines*, drawn in various ways on the skin, sets up inflammation, varying in intensity according to the depth of the burn.

(c) *Puncturing* the exostosis with a hot needle-shaped iron was practised with success by W. Gibson in 1754. This may be followed by purulent Arthritis. Andral in 1851, and Hering in 1857, recommend piercing the exostosis with a hot nail or iron, and allowing it to cool in the wound.

4. *Chiselling off the bony enlargement* is rarely, if ever, attempted by modern practitioners.

5. Dieckerhoff has found opening the bursa situated upon the fan-shaped insertion branch of the tendinous portion of the flexor metatarsi, to be most successful. It causes inflammation, union of the walls, and destruction of the bursa. The inflammation is not, however, confined to the bursa, but extends to the fan-shaped branch of the tendon and ligaments below it, as well as to the periosteum and joint capsule, producing ossification (traumatic Spavin) and ankylosis of the small bones below. The first day after the bursa is opened, the swelling and infiltration are extensive, and a discharge flows from the wound, which afterwards becomes purulent, and the wound heals in about three weeks, but (like the callus of a fracture) it requires longer before ossification is complete.

There are two methods of operating:—

(a) *Opening the bursa with a knife.*—This is performed by placing the animal with the leg to be operated upon next a wall; put on a twitch, and let a man hold the horse's head. Another man is required to hold the leg farthest from the wall (that is, the outside one) backwards, as though he were going to shoe it (in many horses the fore-foot being held up is sufficient). The operator then takes an ordinary scalpel or castrating knife between his thumb and first and second fingers, presses his hand firmly on the lower part of the hock to steady it (in order to direct the knife and flex the fingers easily). He then makes a cut through the skin into the inferior part of the bursa, immediately under the insertion branch of the muscular portion of the flexor metatarsi, on the inner side of the hock, and withdraws the hand quickly to prevent the wound being extended too far by

the animal moving the limb. Should the wound not be large enough, a second incision may be made in the same manner. Dieckerhoff says he has cut straight through into the bone itself, and even into the joint capsule, without any dangerous consequences. The only thing to be careful of is not to open the saphena vein. If the inflammation is not sufficient, the next day a little tincture of iodine may be injected. Should granulations project too luxuriantly from the lips of the wound, apply the nitrate of silver or a decoction of cortex quercus. A cicatrix usually forms in about three weeks, and the animal is fit for work in about five or six. If the swelling is excessive, and does not disappear about the third week, apply some iodine ointment; or even the firing-iron.

(b) *The bursa may be opened with a pear-shaped hot iron*, but care must be taken not to burn deeper than the outer wall of the bursa; for, if the articular capsule is burned, it generally causes suppurative Arthritis; therefore the iron should be applied cautiously. This leaves a slight scar.

(6) *Division of the internal insertion branch of the muscular portion of the flexor metatarsi (tenotomy)* was first introduced by Lafosse. The following is a description of the operation, taken from the *Edinburgh Veterinary Review*, Vol. II., page 104:—“Believing that in the majority of cases of Spavin the cause of lameness is, if not entirely, at least chiefly, of a mechanical nature, and especially referable to the compression which the stretched inner head of the flexor metatarsi tendon exercises on the ossific tumour, thereby preventing relief of pain by allowing of its expansion, Professor Lafosse recommends section of the said tendinous insertion by a transverse incision, about three-quarters of an inch in length, behind the inner saphena vein, on a level with the lower border of the scaphoid. The results are in some cases immediate. Most frequently they only become apparent after a certain number of days, a difference not admitting of present explanation. In a great majority of cases, three weeks after the operation the lame horse is considerably relieved, if not cured, and sometimes the lameness disappears twenty-four to forty-eight hours after the operation.”

Again, in Vol. IV. of the same journal, page 551, it says Jules

Mandel, V.S., Strasburg, had resort to Lafosse's operation, as a last resource, after having repeatedly fired without producing any beneficial effect. The horse was fit for work in a month after dividing the tendon.

7. *Periosteotomy*.—First advocated by Moulden for Spavin, but previously by Sewell for Splint; but it is useless unless the bursa is opened too (Dieckerhoff).

8. *Neurotomy*.—Professor Spooner introduced the division of the posterior tibial nerve before it divides into the internal and external plantars; but this has been repeated, as well as the division of the musculo-cutaneous nerve, without any benefit (Dieckerhoff).

Forensic Consideration of Spavin.—Dieckerhoff says "Spavin without lameness cannot be considered a rehibitory imperfection."

Percivall says, "Nothing is more common than to meet with horses—colts, even—who have what dealers call 'knots' in their spavin places, and the time was when such 'knots,' which have always been regarded as spavins, were certificated as constituting unsoundness. This was a professional decision which met with a good deal of opposition at the time, and justly so; and the result has been that such 'knots' are now allowed to pass as compatible with soundness."

Mr. Barlow's rule was that "if both hocks were alike, and the action good, joints coarsely formed should not be condemned as unsound, more particularly if the enlargements were situated towards their posterior aspect."

Williams, however, tells us that "many horses are foaled with irregular hocks, very often with one hock larger than the other, and such are apt to be condemned as being diseased and unsound"; and he goes on to say, "Experience, however, tells us that a young horse, rough in his hocks, if put to work before he has arrived at his full growth, is apt to fall lame, but if allowed to rest until old enough for work, he will remain sound." Again, a horse may have coarse hocks at four years old, or even look spavined, but at six years old the same hocks will appear fine and sound.

"Spavins in front of the hock are generally condemned, and justly so, but even when so situated one very often finds they cause no lameness.

“The lameness of Bone Spavin is, as a rule, removable in the young and middle-aged, but incurable (with few exceptions) in horses past their prime” (Williams).

Now, gentlemen, this is, perhaps, the most important part of all for you to discuss to-day. There is nothing which is so detrimental to a profession as to appear in courts of law, and give opinions which are contradictory, and anything but feasible and honest to ourselves or our clients; therefore, I shall be very pleased to hear your opinions upon this matter.

Personally, I consider we have no right to use the term “sound” unless an animal is free from disease, so far as we can judge; and I will put it to this meeting, for their consideration, whether it would not be better to restrict the term “sound,” so far as the hock is concerned, to this definition. If the hock is diseased—that is, a spavin is present—and it is of such a size and in such a position that the examiner does not think the deformity will ever interfere with the animal’s usefulness for certain purposes, then I think we are justified in using such terms as “practically,” “usefully,” or “workably” sound; and if we, as practitioners, would make up our minds to use these terms in this sense, I think a great deal of the unfairness which now exists between us would cease.

I am perfectly well aware that we cannot all see things with the same eyes, and practitioners will, from time to time, make mistakes. This is only human nature. But we can and ought to be unanimous about definitions of the terms used in certificates.

Supposing a horse to be spavined, although no lameness is present, we ought not to be able—as we appear now to be—to give a certificate of “soundness.” I have known instances where a horse was examined by two veterinary surgeons: both agreed that the animal had Spavin, yet in one of the certificates the animal was described as “sound,” in the other as “practically sound,” simply because both considered the disease would stand work. The unfairness of this is obvious. A dealer could sell his horse with one certificate, but with the other he could not. Therefore, I hold that we ought not to write certificates of “soundness” when, in reality, we know we are not in a

position to say so. For instance, is there any gentleman in this room who could *guarantee* that any spavin would not produce lameness at some future time? If not, he has no right, in my opinion, to use the word "sound"; and I would even go further, and say that, if he could guarantee the horse standing work, he ought not to use the word "sound"; because a joint cannot be "sound" if it is diseased, although it may, in our opinion, be usefully so. However, if some such term as "practically sound" could be established, with a recognised definition, such as "practical soundness," meaning horses having a disease which, in the examiner's opinion, does not, and will not, in future, interfere with the animal's usefulness, it would be a great benefit to practitioners, not only in preventing such apparently opposite opinions, but also in lessening the number of cases which come into our courts of law to be settled.

Of course, having recognised terms and definitions would not make us all think and see alike, but, in my humble opinion, it would prevent two veterinary surgeons who did hold the same opinion from giving apparently opposite certificates:

Ought spavined horses to be used for breeding purposes?—That "like begets like" is a pretty well-founded maxim nowadays, and I think there are no men better able to demonstrate this fact than veterinary surgeons: As a basis for the discussion upon this point, I would point out to you what Professor Dieckerhoff has to say upon it. He says, "No horse with imperfect conformation of hock, whether affected with Spavin or not, should be bred from, because ill-constructed hocks predispose to disease."

On the other hand, animals with good health and structure of skeleton—*i.e.*, well-proportioned and good angles to their joints—may be used for breeding purposes, although Spavin is present, if the Spavin is known to have been produced by some external cause, such as sprain, etc. If, however, the disease was produced when young (during first or second year), without any known sufficient external causes, then such animals ought not to be bred from. In judging of this, therefore, we must take into consideration: (1). The structure of the bony frame generally; (2) The construction and condition of the hock; and (3) The constitution of the animal itself.

Gentlemen, I am afraid I have trespassed on your time too long already, but, in conclusion, I would ask you to give me your views upon any points you think I have not sufficiently touched upon, and especially would I ask your opinion upon :—

1. The value you place on the conformation of the hock, so far as the angle, size, and shape are concerned in predisposing it to Spavin—*i.e.*, the shape, etc., most susceptible to Spavin

2. The usual seat of the commencement of the disease.

3. The kind and situation of spavins you consider best for standing work.

4. Whether, in your opinion, spavins ever become absorbed?

5. Whether a horse with a spavin, whether lame or not, ought to be called “sound”?

6. Your views respecting the most rational methods of treating a horse (under various conditions) for Spavin.

7. Your views respecting the importance of Spavin for breeding animals.

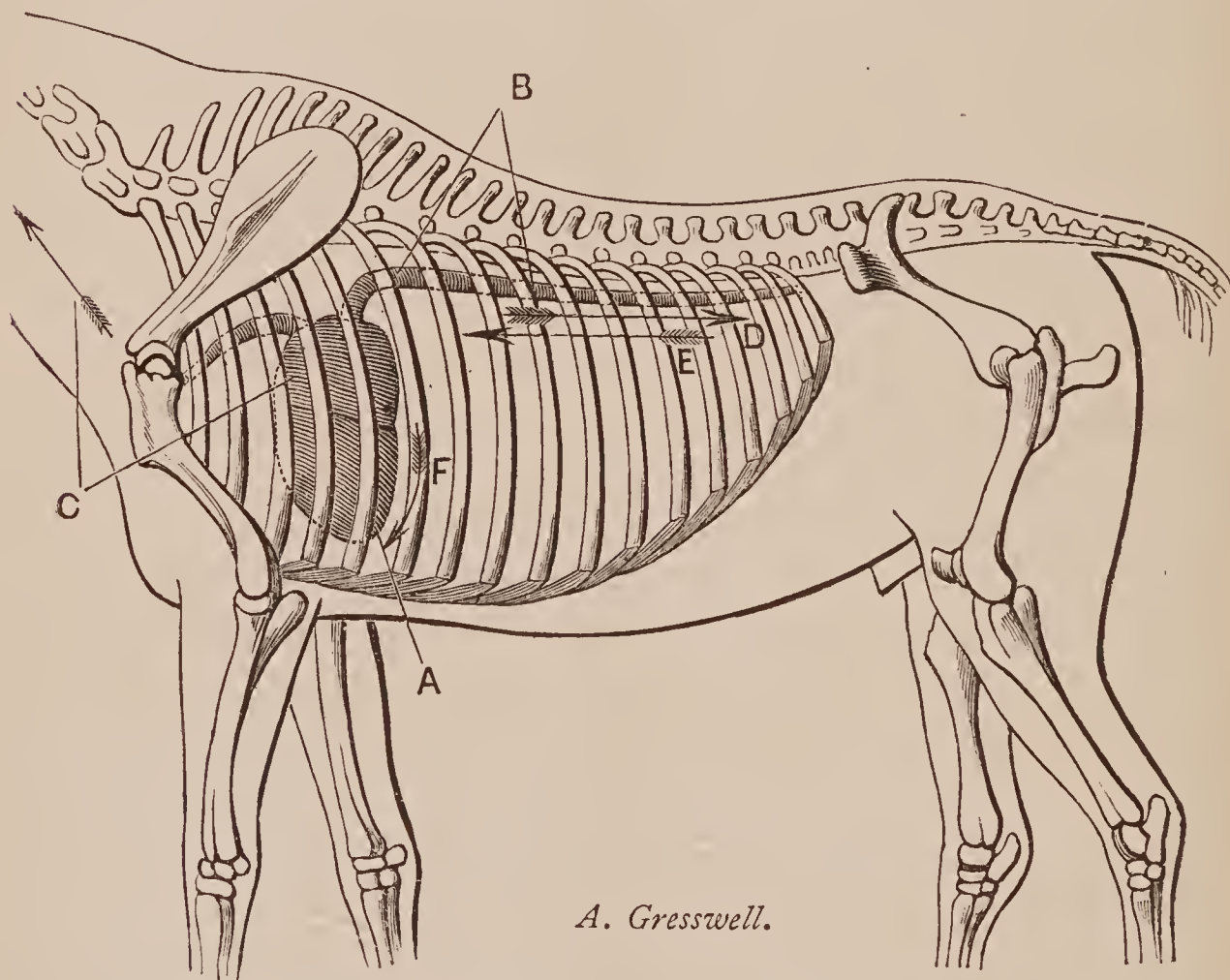
OBSERVATIONS ON CASES OF CARDIAC AND PERICARDIAC DISEASE IN HORSES, WHICH HAVE OCCURRED IN PRACTICE DURING THE PAST NINE MONTHS, WITH SPECIAL REFERENCE TO THEIR DIAGNOSIS AND ETIOLOGY.

BY A. SHAWCROSS, PUPIL TO MR. J. B. GRESSWELL, OF LOUTH.

THE fact that during the past nine months six cases of cardiac disease have occurred in the practice of Mr. J. B. Gresswell sufficiently proves that diseases of the main organ of circulation are common enough in the equine species, and their diagnosis, which was always to me a matter of some difficulty, is now, in many cases, at any rate, comparatively simple; for when once the natural sounds of the heart are clearly understood and recognised, there cannot be much difficulty in noticing murmurs or additional sounds. Of the six cases of which I am about to mention a few facts, two were due to overwork, two to poisons, one followed in a mare after foaling, and the last—one of Pericarditis—was a complication of Pleurisy. The first case of which

I may speak was one of double aortic disease, and in which both murmurs could be distinctly heard.

Their position of greatest intensity was as at B in the figure appended. This case was one of a six-year-old chestnut hunter, and was caused, in Mr. Gresswell's opinion, by the administration of some poison. The animal was taken ill, with several others in the same stud, some months previously, all had irregular, weak, feeble, fluttering pulses, but with the exception of this one they recovered gradually. This animal never regained strength, but still continued as bad as ever. It made but little improvement under treatment. The pulse was very variable in number and rhythm. It was about 60, but generally on slight exertion rose to 100 or 120.



A. Gresswell.

Diagrammatic representation of the position of the heart in relation to the skeletal structures of the chest, and showing the position of greatest intensity of some cardiac murmurs in the horse, drawn up by Dr. A. Gresswell, B.A., M.B. Oxon., M.R.C.S.

- A. Position of greatest intensity of mitral murmur (systolic).
- B. Position of greatest intensity of aortic murmurs (systolic and diastolic).
- C. Position of greatest intensity of tricuspid regurgitant murmur, and its propagation up the neck in pulmonary apoplexy.
- D. Direction of propagation of aortic systolic murmur.
- E. Direction of propagation of aortic diastolic murmur.
- F. Direction of propagation of mitral murmur.

The second case was one of a seven-year-old harness mare belonging to a gentleman residing in the Wolds.

It was in all probability due to overwork. The murmur was very distinct, and the animal incapable of much exertion. It recovered under digitalis and iron, and afterwards of carbonate of ammonia and citrate of iron and ammonia. The next case was one traceable to arsenical poisoning; it made no improvement under treatment, and the autopsy revealed disease of the mitral orifice and endocardium of the left ventricle. The fourth case was one of a mare immediately after foaling, and was diagnosed as Endocarditis, which the autopsy confirmed. On examination the endocardium of both ventricles was found acutely inflamed.

The fifth case was one of Pericarditis in an aged cart-horse. This was a complication of Pleurisy, and gradually made a good recovery. It was attended by well-marked pericardial friction, which ceased when effusion began, and reappeared again when it subsided.

The last case was one of an old mare with dilatation and hypertrophy of the heart, due to over-exertion. It improved a little under tonic treatment, but is not fit for much exertion.

I recollect reading in the *Agricultural Gazette* some months ago that heart murmurs in the horse are difficult, *if not impossible*, to diagnose. Such statements by individuals, evidently ignorant of the subject, should be substantiated or left unsaid, and the diseases themselves should be studied.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(Continued from page 250, vol. xx.)

THE latter portions of the observations in my former paper had reference most especially to man. In treating this subject, we must not lose sight of the situation of the eyes of the horse as contrasted with those of his master. The eyes of the horse are placed laterally, those of man anteriorly. We possess one advantage in being able to view very near objects which are

situated in front of us, but the advantage is a very small one. The horse has many advantages ; he can take cognisance of objects both laterally and posteriorly with accuracy. This is to be accounted for from the fact of our eyes being anteriorly placed, and the eyes of the horse—as I said before—being situated laterally, together with the greater size of the globe in that animal. The eye of man, when compared with that of the horse, is, I should imagine, similar to a small telescope and a large one, both being complete in themselves, but the larger affording a greater field than the smaller. The way to ascertain the seeing powers of the horse is to aim a blow at the head when standing before him. It will be observed he will have some difficulty in warding it, and of judging of the distance it is from him ; not so when standing by his side.

Shying is caused in most instances by imperfect vision, although the generality of horsemen believe it is a trick or habit acquired from idleness, and they refer it to playfulness, skittishness, etc. I am forced to believe, from much practical experience amongst young horses, as well as those more advanced in years, that in nineteen cases out of twenty the visual organ has not the power of perceiving things aright. There are several causes in operation to produce shying. I have known many—very many—horses, with narrow and flat foreheads, possessing small, ill-shaped eyes, desperate and dangerous shyers. The shape of the globe has not been convex, but I have found it more prominent at one part than at another ; they are what I have termed “angularly convex.” I have noticed a similar shaped eye in the bovine race. These horses are the worst shyers of any I have met with. They usually have a fancy for shying at water-marks on the road, especially after dark. There are eyes which are extremely prominent, and horses with eyes such as these must be very near-sighted ; there are others with very flat globes, although said to be so from old age. I don’t find such animals shy as they grow old, but the reverse. I am of opinion—as a general rule—if an eye is perfect in youth, and up to eight or twelve years old, the possessor of that eye will not become a shy, as these animals are not often found so old as to have impaired vision. I have been acquainted with hundreds of old

horses that have not shyed in their old age. The shaped forehead to which allusion has been made has been seen in nervous and ill-tempered horses. When they are bad-tempered and shyers to boot, it becomes dangerous to ride or drive them.

They seem to make a point of starting at an object when there is difficulty in the way, which becomes very annoying. I am not aware of any writer having noticed this peculiarity. Doubtless many veterinarians have made similar observations. but I don't know of any such having been recorded. Shying may be considered to be one of the most unpleasant defects, and is frequently a dangerous practice. As veterinary examiners, we are not expected to make any remark about the shape of the eyes or the shying propensities of horses when brought for inspection. This subject, however, demands our special attention. Shying is usually classed as a "vice," and the question of vice does not, *as yet*, fall within the province of examiners as to soundness, to dwell upon, but I think, if the eye were better understood, we ought to be called upon to state whether such eyes as have been described should be considered sound ones. I know of no portion of our professional duties which require so strict an investigation as that of the visual organs. Who can tell what accidents happen from riding or driving shyers? I think I could name several which owed their origin to defective sight. In giving an opinion as to soundness, we ought to be called upon to speak as to the probability of an animal which may be under examination being free from vice in this respect. I say vice, because it is known by that name, not that I can recognise the name as a correct designation of shying. I am inclined to the opinion that an animal found to be a shyer is indeed unsound, although it has been held by some great authorities that if an animal has been formed in a certain manner it does not constitute unsoundness. "Provided this peculiarity does not interfere with the natural usefulness of the animal, then it may be said he is sound." But if that peculiar formation of parts can be proved to exert a powerful influence in the carrying on the function of those parts, whereby they are materially impaired, then I think it amounts to unsoundness. "Youatt," at page 133 in his work, when writing upon

the subject "Shying," says, "There is a shying often the result of cowardice, or playfulness, or want of work, but at other times proving beyond contradiction a defect of sight even more dangerous than blindness—a loss of convexity in the eye, lessening the convergency of the rays, and throwing the perfect image beyond, and not on the retina. There is a striking difference in the convexity of the cornea of the colt and the old horse; and both of them, probably, may shy from opposite causes—the one from a cornea too prominent, and the other from being too flat. In the usual examination of the horse previously to purchase, sufficient attention is not always paid to the convexity of the cornea." Here, then, it will be seen that this acute observer has drawn attention to one cause. At pages 453 and 4 he treats largely upon this habit. His remarks, together with those of the late John Laurence and Mr. Castley, seem to lead us to the belief that almost all cases of shying are produced by play, skittishness, or fear, etc. The anecdote found at page 455 is very interesting, but it does not explain anything. I could, if time permitted, relate several instances of horses disliking to enter a stable. I have had personally to superintend the getting of them into their places, and believed at the same time I could easily solve the mystery by an examination of the head and eyes. By closing one eye, it is known that man is capable of seeing about two-thirds of the objects which he can when both eyes are in action. A horse similarly circumstanced, I should imagine, labours under an equal disadvantage. It may be profitable to bear this in mind in order to test its accuracy.

Having a professional visit to make some time ago in the country, I was requested to examine a four-year-old entire colt with regard to his eyes. Finding Capsular Cataract in both, the owner of the horse became deeply interested, and inviting me to partake of his hospitality, he put a series of questions relative to eye diseases generally, after which he introduced me to his son, who was suffering from an attack of Keratitis, and consequently unable to distinguish any object; which had existed for many months. His case was replete with interest, inasmuch as we, as *veterinarians*, are not often consulted upon such cases as that alluded

to. It may not be generally known that in Ireland there are more blind persons, in proportion to the population, than in any other country in the world, save one, which, I believe, is Siberia, I have not any statistical accounts prepared in reference to blindness in the horse, but I am convinced the same thing existed in the horse at the date these observations first were published. A few years before this, accounts were published as to the number of persons totally blind in Ireland; and there were at that time, if memory serves me rightly, about *from seven to eight thousand in a state of darkness*. Few persons will be inclined to believe such a startling fact. It is not known how many individuals suffer from the loss of one eye only. If such information could be obtained, it would present a truly melancholy picture indeed. My observations with regard to horses leads me to the conclusion that, for some years past, there are fewer horses with affections of the eyes than formerly, and this is owing to the better ventilation of stables, etc., and the absence of "sires" who were partially blind. This latter remark will show, without doubt, that eye diseases are, some of them, of an hereditary character.

(To be continued.)

THE INFLUENCE OF HEREDITY AND CONTAGION ON THE PROPAGATION OF TUBERCULOSIS.

(Continued from page 94.)

However, public opinion begins to be interested in this question. The conviction that the consumption of the flesh and milk of phthisical cattle constitutes a veritable danger, which conviction at present is only held by a portion of the public, is gradually penetrating society, and daily gaining ground. It will follow, therefore, that ere long a sure guarantee will be demanded from the State against the permanent danger incurred from this disease in bovines, and pressure will be brought to bear on public administrations to compel them to adopt the necessary measures. Unfortunately, in having recourse to the opinion of competent persons, governments will have to contend with the indecision of these, and stand before hesitating opinions; consequently, they

will give up attempting to devise measures, and throw upon the undecided scientists or practitioners the heavy responsibility of an eventual calamity.

The Sanitary Commission of Gotha expressed itself on this subject in the following terms : " With regard to the consumption of the flesh of tuberculous cattle, the Commission has not yet arrived at a definite opinion, for the reason that competent persons are not agreed, or are at least somewhat in doubt, as to this matter. It has been established as a fact that by the use of this flesh Tuberculosis may be transmitted ; it is not overlooked that the gastric juice does not always destroy the tubercle contagium, and that cooking is not a certain or sufficient procedure for the destruction of the virus, unless the flesh is kept for hours at the boiling point ; it is also known that a microscopical examination of the flesh, such as is made with trichinous flesh, allows the existence of the disease to be ascertained (?). Does it not seem, from all these circumstances, that there should be no doubt as to whether such flesh is or is not admissible as human food ? It is very singular that there should be any scruple in condemning this, merely because the prohibition of its use may somewhat damage the pecuniary interests of certain persons ! "

Reproaches similar to the above will certainly be multiplied, if veterinary surgeons do not decide to frankly declare, without consideration for the interests they are not called upon to defend, that the flesh and milk of tuberculous animals should not be allowed for human food, and if they do not indicate the ways and means by which the necessary measures may be applied in a form satisfactory to the generality.

The Organising Committee of the International Veterinary Congress has recognised the urgency of a solution of this question, by including Tuberculosis among the *tractanda*. The Congress cannot refrain from the task of arriving at a practical solution of this question, if only *in nuce* ; as the propositions which have already been put forward up to the present time are insufficient for the attainment of this object.

We have seen that the source of contagion in tuberculous animals can neither be completely diverted nor altogether exhausted, because the control of the flesh and milk supply is sur-

rounded with so many insurmountable difficulties as soon as these articles are disposed for sale, and also because a permanent surveillance of cattle, with the concurrence of the owners, does not afford a guaranty commensurate with the gravity of the danger.

It remains, then, to inquire if the police measures applied to the contagious maladies might not furnish us with the means of completely drying up the sources of the disease ; but in selecting these measures, we should not lose sight of the fact that it is more especially by the association of the private interests of the cattle-owner with the public interests—that is to say, with the willing assistance of all proprietors of stock—that we shall the more readily attain the proposed object.

In pursuing the latter course, we find ourselves at home ; for we are placing ourselves in the real domain of veterinary medicine and veterinary sanitary police. In this domain contradictions and disputations are less to be feared, and they should not be so protracted as with sanitary police, properly speaking.

Tubercular Phthisis is, as has been already said, a disease which is transmissible by heredity and contagion ; it is very prevalent among warm-blooded animals which live in proximity to man. No other malady so well merits the designation of *Universal Panzooty*, or “ World-plague ” (*Weltseuche*).

It is demonstrated, on the one side, that this malady is only propagated by a well-determined contagium, elaborated by animals affected with it ; on the other side, it is admitted in principle, in modern sanitary police laws, that the contagious diseases of our domesticated animals, when they are incurable and fatal, should be combated by isolation, slaughter, removal of the sick or suspected, as well as by the disinfection of the places occupied by these animals. In the presence of these two facts, we should no longer hesitate to adopt, with regard to this malady, analogous measures to those prescribed for these other contagious diseases. Some careful, experienced, and intelligent breeders have for years so acted, that instead of putting away tuberculous animals, so that they might no longer do mischief, they have sold them or sent them to the butcher ; instead of diminishing the injurious influence of such animals, they have rather favoured it ; they purified their own stables by infecting those of their neighbours.

There is no reason why Tuberculosis should not be included among the maladies which must be combated by sanitary police measures. The majority of farmers, by a careful and prolonged examination of their animals, are able to recognise the manifestations which denote the existence of this disease, or lead to suspicion of its presence ; we might, therefore, render the *declaration* of this malady obligatory.

The veterinary surgeon can also, in the majority of cases, and during the life of the animal, recognise or suspect the existence of the affection. The diagnosis may, in every instance, be positively established when recourse is had to an autopsy. Besides, nearly all the sanitary police laws have provided for the slaughter and autopsy of suspected animals, with a view to the confirmation of the diagnosis in cases of epizootic diseases. We might, therefore, in order to save time, get to know, in a given case, up to what point suspicions as to the existence of the disease are or are not justified.

As with Glanders, we should, when dealing with Tuberculosis, look for the appearance of new cases in cowsheds where one animal has shown symptoms of it ; these are most likely to be animals related to it by parentage, or standing beside it. It is therefore possible to recognise in good time the suspicious animals.

As soon as Tuberculosis has been recognised among the inhabitants of a cowshed, the suspected animals should be got rid of as soon as possible, and the stalls and other places cleansed and disinfected, as well as the utensils which have served to hold their food and drink, and the articles of grooming and equipment. It would even be desirable to disinfect the clothes of the persons who have been more or less in contact with the diseased or suspected animals.

If the number of cattle is considerable in a shed, a herd, or a farm, it would be best to remove from these places those which do not manifest any suspicious symptoms ; those affected, as well as those suspected, should be immediately sacrificed on the spot, or in an adjoining abattoir, or after being fattened for a few weeks. After getting rid of all the diseased or suspected, measures of cleansing and disinfection of the sheds, utensils, etc., should be resorted to.

In the introduction to the present work, we have shown that Tuberculosis is most frequent among bovines, that the other domestic animals, and especially pigs, are less disposed to contract the disease, and that they probably receive its germs through the intervention of affected cattle. As there is no need to apply such severe measures as in the cases in which we have to combat a grave disorder, we may limit their employment to the instances in which it is necessary to stamp out the disease in the *bovine species*, no matter in what form it appears. A limited application of the same measures may be made in cases in which the malady is developing in the other domestic animals capable of contracting it ; though it is to be observed that the extinction of the disorder among the bovines will probably lead to its disappearance in other animals. It would, however, be desirable that the local police authorities should have the right to apply measures analogous to those mentioned to the disease affecting other than bovines (especially pigs), if it should extend and assume sufficient importance to justify them.

The flesh and milk of tuberculous animals, whatever may be the species of these, should not be allowed to be consumed as food, and any infraction of this prohibition should be punishable.

It is true that the application of the proposed measures, maintained until the disease had completely disappeared, would cause heavy loss to the breeders and feeders of stock. The farmers would, for this reason, endeavour to evade these measures, and this evasion would be all the easier from the chronic and occult nature of the disorder. Supposing that recourse be had to these measures, they would only have the desired effect if their application was supplemented by another arrangement, which is also resorted to in certain countries, and yields satisfactory results—this, is *awarding an indemnity* to the owners whose cattle are sacrificed. This award is perfectly justifiable in this instance. The cattle-owner, left to his own efforts, is not in a position to preserve his property from an invasion of Tuberculosis. If his stock is decimated by the malady, it is not he who has been knowingly the cause of the accident ; so that, in compelling him to get rid of his animals without compensation, we are imposing on him a more or less heavy sacrifice for the benefit of all, so far

as the preservation of the health of mankind and the public wealth is concerned ; and if he has to submit to such a sacrifice for the general good, then it is the duty of society to repair the loss he sustains, either wholly or partially.

Compensation is the price which a community owes to an individual (the owner of cattle in this instance) for his share in the struggle against a general danger ; it is this indemnity which combines and concentrates the efforts of isolated individuals and of society into one mode of action—two groups of forces, which, without this bond, would remain hostile to each other. The equity of these principles no one can contest.

Conformably with the general principles which ought to regulate the distribution of indemnities in case of losses from contagious maladies, a portion of the loss which he has incurred should fall upon the owner of the cattle, as one-third or one-fourth. This is a means employed by society to ensure the vigilant and interested surveillance of the owner, for the preservation of his stock. Full compensation should not be awarded except for those animals which have been slaughtered and found free from disease on an autopsy being made ; but in such an instance as that in which partial compensation is granted, the sum realised by the sale of the carcase should be deducted from the total amount. There would, therefore, be nothing more to pay for the slaughter of a healthy animal than the difference between the value of the flesh and the entire carcase on the one hand, and the price of the living animal on the other.

In order to prevent excessive demands, the maximum amount of compensation should be legally fixed, beyond which the indemnity should not go.

Looking to the insidious course sometimes assumed by diseases for which compensation is allowed, it is advisable to give it not only for animals which have died or been killed by order, in consequence of a regular declaration, but also for those sold to the butcher, and in which the disease has been found after slaughter. This latter measure at the same time constitutes an excellent means of preventing the sale of tuberculous animals. Compensation should in these cases be considered as a reward for allowing the disease to be discovered in carcasses intended for

food, and it constitutes a much better means of preventing the clandestine sale of such flesh than the most severe administrative control of the butcher's trade, with the slaughter and the more or less heavy penalties prescribed by law. The awarding of compensation fills up a *hiatus* which has remained up to the present time in the system of meat inspection, and the existence of which explains the insufficiency of the results hitherto obtained with respect to the flesh of tuberculous animals. It does not matter to whom compensation is made—whether to the butcher, the cattle-dealer, farmer, or grazier—it always has, as a consequence, the relieving of the competent expert from the solicitations of interested parties, and enables him to give an impartial judgment—all that the inspector should have in view when endeavouring to protect the health of the consumer.

The practice of seizure has been abandoned, after existing for centuries past, and the reason for this, in our opinion, is to be found in the absence of compensation. Medical men, such as Heine, Graumann, and others, who in this matter were only acting for other particularly interested persons, have been followed by intelligent persons, who have gradually won over public opinion to their cause.

It is for this reason that, now-a-days, a number of veterinary surgeons cling to the idea that the flesh of tuberculous cattle is injurious, and yet cannot categorically express their opinion as to the necessity for excluding the flesh and milk of such animals from consumption.

The granting of compensation would, however, not of itself dissipate the arguments which the cattle-owners and butchers, inspired by their private interests, oppose to the application of a sanitary measure the utility of which is indisputable, but yet it would facilitate the inspection of meat in each particular case. Compensation would not only have the effect of revealing the greatest possible number of cases of Tuberculosis, but it would also allow the veterinary surgeon to certify to every one of these cases. The veterinary surgeon, who is alone competent, could then determine how far the flesh might be allowed for consumption, and would not be importuned in one or other sense; he could be sufficiently strict to reject as unfit for food the flesh

which he might consider dangerous. If these measures were adopted, it would be seen that the cattle-owners would not seek to utilise the food admitted for consumption, and that the majority of the public would no longer buy the flesh of tuberculous cattle as good food.

With regard to the question as to what is the material loss caused by Tuberculosis, this may be differently looked at and differently decided.

If we consider that the measures which should preserve the inhabitants of a country from the injurious effects of some general noxious cause—and the disease under consideration comes under this head—devolve on the State, it appears beyond doubt that the State should take this loss in hand by awarding compensation to those whose claims to it are made good.

In those large States which are divided into provinces, districts, etc., this charge might be imposed on counties and central administrations. If, on the contrary, it is taken into account that the flesh and milk sold by cattle-owners constitutes, in special instances, a real danger for the consumer; that it is certainly the interest of these owners to take the necessary measures to protect their animals from this grave cause of incessant losses; and that the compensation allowed them for cattle slaughtered because of the disease; then we are naturally brought to the conclusion that the realisation of the funds for compensation should fall, in the first instance, upon these cattle-owners.

In fact, the first effect of the stamping out of Tuberculosis would be to free cattle-owners from a heavy burden, the getting rid of a danger to the public health being here only of secondary importance. Besides, it is only right that every owner should assist in the creation of a fund required to successfully combat panzoötic diseases, and to arrest or diminish their destructive influence as much as possible; and they should also have a real interest in ensuring the prompt and thorough execution of the measures recognised as necessary to prevent the losses these maladies occasion.

In decreeing as obligatory on the proprietors of cattle, the adoption of the system of insurance against losses due to Tuber-

culosis, the State would fulfil all its obligations with regard to those whom it governs. It would then be necessary to combine into an Obligatory Insurance Association all the cattle-owners of a country, county, or district ; and if it were decided to extend compensation to the butchers, these also should participate in the contributions to, and advantages derived from, the Association.

In countries where warranty laws (*lois sur la redhibition*) exist, and where Tuberculosis is classed among the maladies recognised by these laws, the right to compensation may be extended to the butchers.

Obligatory insurance, such as we have suggested, would require an annual census of cattle. This is already obtained in the majority of the German States ; it is made annually by the local administrations on a day fixed for the purpose. The census return is posted up for fourteen days after it has been completed, in order to give people who are interested the necessary time to correct any errors they may discover, and eventually to insert all the corrections deemed necessary. The returns are finally sent to the receivers of contributions, who collect the proportion each cattle-owner has to pay, according to the number of cattle he possesses.

By this means, in the Grand Duchy of Baden in 1879 and in 1881, there was collected a sum of five pfennigs for each head of cattle, in order to provide a fund to compensate for the losses caused in 1879, 1880, and 1881 by Contagious Pleuro-pneumonia and Anthrax.

There is no occasion to insist further on the details relative to the system of compensation proposed, because of the very diverse organisation of the different States, and the varied exigencies which are the consequence.

It should be observed, however, that if these measures cannot be introduced in a general and simultaneous manner, the countries which adopt them would be compelled to guarantee themselves against the others, by deciding that compensation would only be given to the cattle-owners who could prove that animals recognised as diseased had been in the country for at least a year.

The idea of combating Tuberculosis by sanitary police measures and by obligatory insurance, at one and the same time, is not new. The Central Committee of the Agricultural Society of the Grand Duchy of Baden, at its meeting in 1882, addressed a petition to the Government, with the view of obtaining permission to present to the Chambers the draft of a Bill, rendering it compulsory for all cattle-owners to establish a system of mutual insurance against the losses caused by this scourge.

In 1881 the Badenoise Veterinary Society, at its seventeenth general meeting, voted the following resolution: "The meeting is of opinion that it is urgently necessary to institute a mutual insurance association among stock-owners, because of the losses caused by diseases which are neither the consequences of grave hygienic neglect nor crass ignorance."

When the same subject was discussed at a meeting of the Upper Chamber on May 16th, 1882, Count Von Berlichingen spoke as follows:—"The ninth point to which I desire to draw your attention has for its object an extension of the law with regard to veterinary sanitary police. I have observed with satisfaction, that within the last few years the Grand-Ducal Government of Baden has been more actively engaged in improving agriculture and assisting it in one way or another. The law on sanitary police more especially has had favourable consequences in this direction. As for ourselves, we have been for a long time seeking for means by which to avert ruin from the poor people who have the misfortune to lose their cattle; for we know, from experience, that very often the loss of their animals has been the origin of ruinous debts to which the brave toilers have succumbed. If a farmer loses a cow he has to buy another, and he has frequently to borrow the money at heavy interest to pay for it, or obtain it on oppressive credit; once in the hands of the usurer, his ruin is nearly always consummated. Our reflections on this subject have brought us to the conclusion that it would be useful, as has been already said, to institute by law, obligatory and reciprocal insurance among stock-owners, against all the accidents to which the domesticated animals are liable. The draft which was drawn up with this view was submitted to the agricultural societies of the different

districts. Nearly every one of these gave a special opinion, but the majority were unfavourable to the establishment of compulsory assurance. We admit that a good number of arguments may be brought against such a project, and we do not wish to say all we now think of it.

“The idea will be realised, we doubt not, but such a conception must be well considered and discussed before the majority of the public will recognise how correct and just it is. In any case, the domain of the law of sanitary police should be enlarged, and I am convinced that the Minister of State, as well as our honourable reporter, will entertain the opinion I hold, that this law is not yet perfect. To prove this, I need only direct your attention to the tubercular disease and Tubercular Phthisis. I am firmly convinced that if the women in our towns knew the danger they incurred by pouring into their coffee milk from a tuberculous cow, we should immediately be crushed beneath an avalanche of petitions. The well-established fact that the use of such milk may produce Tubercular Phthisis, amply justifies a panic of this kind. The large owner who possesses a considerable number of cattle, soon notices when one of these commences to be affected with Tuberculosis, and loses no time in getting rid of the lot; these then pass from hand to hand, until at length they reach the small farmers, who, in buying them, think they have got good bargains; but before long they find out their mistake in the damage, or even ruin, they have to submit to.

“In ordering the burial of unhealthy flesh, because of this disease, we preserve hundreds of people from disease, while the poor people whose property we have seized are the only sufferers—they receive no compensation. We should like to see an order that all animals affected with Tuberculosis be slaughtered and their flesh buried; but we should also desire to see the owners indemnified for the loss imposed on them.

“We are, lastly, of opinion that an indemnity should even be given for all meat seized and buried; in the present state of the law this is very often not accorded.

“I have confined myself to these few indications, in support of which it would be easy to show you numerous letters and

complaints, but I do not wish to occupy your time with these."

In the Grand Duchy of Baden it is not only sought to institute repressive measures against Tuberculosis, but the authorities are much occupied in studying the practical means wherewith to oppose it. The central bureau of the Agricultural Society has charged the veterinary surgeon of the country (*Landesthierarzt*) to calculate how much money it would require, in the way of contributions from the cattle-owners, to raise a sum sufficient to cover *all* the losses among cattle, resulting from necessary slaughter or natural death.

As the system we have proposed, in order to arrive at a practical solution of this question, is of general interest, but at the same time presents an altogether special interest with regard to the question, we shall here reproduce all the calculations to which we have had recourse with this object in view.

By this calculation we have endeavoured to ascertain :—

- (a) The number of cattle in the country ;
- (b) Their average value ;
- (c) The number of animals lost every year ;
- (d) The sum total of losses, and the average value of each animal sacrificed ;
- (e) The importance of the danger incurred by cattle in different parts of the country.

These primary questions being more or less exactly solved, it remains to find what tax would be required to be paid by the cattle-owners to create a fund from which all the damage sustained in the course of a year, from the loss of cattle and destruction of meat, might be covered. It would also be necessary to determine if there was any reason, if such a fund was instituted, to create a unique contribution of so much per head of cattle, as is done in assurance societies against epizootic diseases ; or to decree a differential tax, dependent on the real value of each animal, and the danger of loss inherent in the locality where the animal is kept. The first of these two alternatives appears to us the best, as it better facilitates the practical success of compulsory assurance, which would again considerably assist in its effects the mode of assurance already existing.

In order to respond to the above questions, we were compelled

to depend upon facts collected during the course of several years, and obtained from the best sources.

The information of which we availed ourselves was derived from official sources, particularly from :—

(a) The publications of the statistical *bureau*, which give every year the result of the census of cattle (years 1867 to 1879).

(b) The annual reports of the district veterinary surgeons of the Grand Duchy of Baden (1872 to 1879) ; these documents are first submitted to the district administrations, then forwarded to the Minister of the Interior, who sends them to the technical reporter, who prepares a *résumé* of them.

(c) Special information obtained direct from the veterinary surgeons by the Minister of the Interior (1876 to 1879).

(d) The abstracts of prices of cattle sold at the markets, and those of butchers' meat, published in the weekly agricultural journal and in official publications (1866 to 1879).

(e) The abstracts of excise, the amount of which is published annually by the general direction of contributions of the Grand Duchy of Baden (1832 to 1879).

(f) The abstracts prepared by the court of accountants, relative to the money paid as compensation by the Treasury for animals slaughtered by the police, or because of Contagious Pleuro-pneumonia or Anthrax (1879).

(g) The abstracts of accounts of several insurance societies against the losses in cattle in several parts of the country (several years between 1868 to 1879).

The *quantity* of this information is sufficient to allow of a sufficiently precise conclusion to be drawn, and to solve the questions asked above, as it belongs to a period during which numerous modifications and alterations occurred in the cattle trade. These modifications and alterations have been the cause of considerable variations in the numerical importance of the bovine population, in the value of each head of cattle, as well as in the mortality occurring among the cattle in the course of this somewhat long period.

With regard to the *quality* of this information, we believe—even without taking into account the value of the sources whence

it has been derived—that it can be accepted with as much confidence as such information deserves. Notwithstanding the difference of the sources, the conclusions arrived at are in harmony; they are evidently rational, and not in opposition to the facts.

These preliminaries being established, we may proceed to examine the questions already propounded. The *first* is concerning *the importance of the bovine population* in the Grand Duchy of Baden. From an examination of the documents mentioned, the number of cattle has been:—

In 1872, 621,888 ;	In 1876, 568,046 ;
„ 1873, 660,405 ;	„ 1877, 590,158 ;
„ 1874, 654,846 ;	„ 1878, 648,732 ;
„ 1875, 626,026 ;	„ 1879, 665,729.

The annual average during this period has therefore been 629,435 cattle.

The *second* point is the *average value* of each head of cattle. To solve this question, it was at first necessary to establish the average price of cattle in different parts of the country; the highest and the lowest prices of calves, heifers, steers, cows, and oxen have been calculated, and then valued in lots of a hundred, made up in such a way as to represent, in the proportion between the number of different animals composing it, somewhat the proportions usually found in the entire bovine population. The value thus calculated gives the average price of one animal.

Among a hundred cattle in the Grand Duchy of Baden, there is an average of seven calves, twenty-three heifers or steers, fifty-one cows, ten bulls, and nine oxen.

To calculate the respective value of these animals, the average price of the following markets is taken: Messkirch, Donaueschiregen, de Bretten, Eppingen, Adelsheim, Schönaue, Ettlingen, and Boxberg. The results are as follows:—

Cattle of Messkirch and Neighbourhood.

	Price of Animals.	Total Value of a Lot of 100 Cattle.	Total Average No. per cent.
Calves ...	40 to 120 marks*...	280 to 840 marks ...	7 calves
Heifers ...	200 „ 400 „ ...	4,600 „ 6,900 „ ...	23 heifers
Cows ...	250 „ 400 „ ...	12,750 „ 20,400 „ ...	51 cows
Bulls ...	150 „ 400 „ ...	1,500 „ 4,000 „ ...	20 bulls
Oxen ...	400 „ 500 „ ...	3,600 „ 4,500 „ ...	9 oxen

22,730 to 36,640 marks. 100 cattle.

Maximum and minimum averages, 366 to 227 marks.

Average value of each animal, 297 marks.

* The mark is equal to a shilling.

Neckar Breed.

Price of Animals.			Total Value of a Lot of 100 Cattle.			Total Average No. per cent.		
Calves	...	30 to 35 marks	...	210 to 245 marks	...	7 calves		
Heifers	...	200 „ 250 „	...	4,600 „ 5,750 „	...	23 heifers		
Cows	...	150 „ 300 „	...	7,650 „ 15,300 „	...	51 cows		
Bulls	...	250 „ 300 „	...	2,500 „ 3,000 „	...	10 bulls		
Oxen	...	400 „ 500 „	...	3,600 „ 4,500 „	...	9 oxen		

18,560 to 28,795 marks. 100 cattle.

Maximum and minimum averages, 287 to 185 marks.

Average value of each animal, 237 marks.

Baar Breed.

Price of Animals.			Total value of a Lot of 100 Cattle.			Total average No. per cent.		
Calves	...	30 to 60 marks	...	210 to 420 marks	...	7 calves		
Heifers	...	200 „ 350 „	...	4,600 „ 8,050 „	...	23 heifers		
Cows	...	200 „ 400 „	...	10,200 „ 20,400 „	...	51 cows		
Bulls	...	150 „ 300 „	...	1,500 „ 3,000 „	...	10 bulls		
Oxen	...	250 „ 500 „	...	2,250 „ 4,500 „	...	9 oxen		

18,760 to 36,370 marks 100 cattle.

Maximum and minimum averages, 364 to 188 marks.

Average value of each animal, 267 marks.

Forest Breed.

Price of Animals.			Total value of a Lot of 100 Cattle.			Total average No. of Animals.		
Calves	...	20 marks	...	140 marks	...	7 calves		
Heifers	...	120 „	...	2,760 „	...	23 heifers		
Cows	...	150 „	...	7,650 „	...	51 cows		
Bulls	...	180 „	...	1,800 „	...	10 bulls		
Oxen	...	300 „	...	2,700 „	...	9 oxen		

15,050 marks 100 cattle.

Average value of each animal, 151 marks.

Odenwald Breed.

Price of Animals.			Total value of a Lot of 100 Cattle.			Total average No. of Animals.		
Calves	...	18 marks	...	126 marks	...	7 calves		
Heifers	...	120 „	...	2,760 „	...	23 heifers		
Cows	...	140 „	...	7,140 „	...	51 cows		
Bulls	...	170 „	...	1,700 „	...	10 bulls		
Oxen	...	320 „	...	2,880 „	...	9 oxen		

14,606 marks 100 cattle.

Average value of each animal, 146 marks.

(To be continued.)

Editorial.

THE NATIONAL VETERINARY ASSOCIATION.

THE third general meeting of this Association was held at Birmingham, on the 4th and 5th of August, under the presidency of Harry Olver, F.R.C.V.S., Tamworth, and appears to have been in every respect a great success. It could scarcely be otherwise, so far as the efforts of the secretaries and others who had to do with its organisation and the preliminary preparations could secure such a consummation. This gratifying result was much enhanced by the address of welcome given to the meeting by Mr. Sampson Gamgee, President of the Midland Medical Institute, in whose rooms the meeting was held; himself a member of the veterinary profession, as well as a distinguished surgeon, he could cordially sympathise with the object of the assembly, inasmuch as he confessed to the pleasure it gave him to look back to his studies in veterinary medicine, and the satisfaction which the opportunity afforded of welcoming its practitioners, and of meeting some of his old friends and fellow-students. To his and to his colleagues' warm sympathy and assistance the occasion was undoubtedly rendered more profitable and enjoyable.

The General Secretary's Report shows that the Association is progressing shamefully slow, the number of new members elected during the past year being about forty-five, and this addition only brings the total number of members up to two hundred and sixty-four. This, in a profession which numbers nearly three thousand members, is not very creditable, and it must be confessed that, comparing ours with the medical profession, and the meetings of the British Medical Association, it would seem as if we took but little interest in our own welfare and advancement. Considering the amount of good such an Association is likely to confer, not only upon individuals, but upon the entire body, if its objects are properly carried out, it is very surprising that it should not at least muster five hundred enthusiastic supporters, who would vie with each other in bringing forward important subjects for discussion, and do their utmost to shed light where obscurity now prevails, by contributing their observations and experience, and comparing these with those of others. We earnestly hope that before another meeting takes place, the register of members will show the present number trebled, and a lively competition aroused as to who shall have the privilege of contributing papers. Such an Association as this well deserves the countenance and support of every one who cares for progression and unity; not only should it afford opportunity for the promulgation of new facts and ideas with regard to medicine and surgery, the best means for protecting the domesticated animals from disease, and increasing their value to man, or enunciating opinions with regard to professional ethics, or politics, but it should also afford encouragement and assistance—pecuniary or otherwise—to those among us who are desirous of undertaking researches in physiology and pathology, or rewarding those who have done good work in the service of the profession. Such an Asso-

ciation has a wide and cheering prospect before it, as the more accessions it gains in its ranks, so the more surely and completely will its objects be achieved.

We hope to commence the publication of the report of the late meeting in our next issue, as it has not come to hand in time to appear in the present number ; while in the meantime we must congratulate the President, secretaries, office-bearers, and members on the success attending the third meeting, while it is to be hoped that its next assembly in the Scottish capital will be even more successful, and witness a crowd of newly-enrolled colleagues, as well as a full muster of its older supporters.

NOTES ON A SHORT PROFESSIONAL TOUR IN BRITISH BURMA.

BY JOHN HENRY STEEL, V.S., A.V.D., BOMBAY.

IT may be interesting to the readers of the VETERINARY JOURNAL to hear what professional matters specially attract attention in this most interesting portion of the British Empire in the East. The more will this be the case, since in climatic conditions British Burma differs very considerably from British India ; it is inhabited by very different races of men and animals, and presents special geological and hydrographical features. The following notes were made during a cold weather tour of five months' duration ; they are necessarily, therefore, rather of the nature of "first impressions," and so must be accepted as open to correction. But few members of the profession are in a position to express opinions on Burma from practical experience. The only veterinary officer stationed there is Veterinary Surgeon (1st Class) R. J. Frost, A.V.D., who has held the post of veterinary instructor in the province for some time. To his teaching duties have always been added the advising of the provincial Government on veterinary matters, and the adoption of measures for the detection and repression of communicable disorders among country cattle. Some nine or ten years ago, the necessity for some civil veterinary agency was so obtruded on the local Government by the enormous losses of cattle which impoverished the Burman people, that the supreme Government was requested to place the services of a military veterinary surgeon at the disposal of the British Burma authorities. Mr. S. R. Sartin was first appointed, but after a time resigned, as certain promises made to him by the then Chief Commissioner were not acknowledged nor acted on. When that officer was transferred to other duties, Veterinary Surgeon Frost was then appointed to succeed to the post of veterinary instructor, and has met with success in the performance of his duties most gratifying to Government, as has been repeatedly acknowledged. The Burma Government seems to be not only gratified but astonished that Mr. Frost has succeeded in turning out useful native practitioners. The Burmese differs, as regards medical education, very much from most natives of India. He is apathetic and careless, so that he rarely settles down steadily to medical studies. It has been found that, although smart and intelligent, he lacks the perseverance essential to continuous and solid study, and several attempts made to found a medical school in Rangoon have failed ; another difficulty to be contended with, is the absence from the language of Burma of words suitable to convey medical technical ideas. Thus the process of teaching in the Burmese language, especially through an interpreter, is slow, and requires constant "steadyng." The first batch of students

qualified under Mr. Frost's tuition were considered private practitioners; but it was very soon found that, although the animal wealth of Burma in the aggregate is enormous, the price of individual animals in the districts is seldom worth the cost of medical attendance for the risk of restoring them to health. Accordingly, the graduates soon were diverted to other branches of livelihood, and Government found that their influence for good in the country was not appreciated. It has now been decided to introduce a civil organisation under Mr. Frost, who arranges that qualified natives be posted in the districts, in Government pay, and that their efforts be concentrated where the emergencies of disease outbreaks specially demand their presence. Under this organisation the onus of local repression falls very heavily on Mr. Frost, whose presence is constantly being required at various parts of the large and impracticable country under his supervision. The nature of the country varies considerably, but it is mainly a rich alluvial tract traversed by a network of large rivers, the watersheds of which are separated to near the coast-line by ranges of mountains running north and south. The mountainous division of *Arakan* lies at the north-west, and extends from the eastern limits of the Bengal Presidency downwards to the north of the Gulf of Martaban. Its people differ in language and manners from the Burmese people, and the difficulties resulting from this have necessitated the proposal to Government of a special class for the education of students for that part of Burma. Military operations here, during the first Anglo-Burman war especially, proved conclusively the prevalence of a very fatal form of fever in man and beast; but troops have marched through it in the dry season with little loss. *Tenasserim* extends downwards on the eastern coast of the Gulf of Martaban, along the Bay of Bengal to the Malay peninsula. It is specially interesting in association with the elephant and pony traffic which takes place with the Shan states (lying between Upper Burma and Siam) and with Siam. Elephant stealing is a frequent form of crime on the Burma-Siamese frontier, and one which presents the greatest difficulties in repression, because of the ingenuity of the thieves in altering distinctive marks, in eluding pursuit, and in complicating proof in law-courts. Moulmein is the centre of trade in live stock; the ponies and elephants come down to that town at certain seasons, and are purchased by dealers for export or local sale. Of elephants, large "tuskers" fetch a considerable price, since they are eagerly purchased by owners of saw-mills and the timber companies for dragging and stacking timber. A large number of the huge saw-mills of Moulmein are now thrown out of work, and even at Rangoon some are vacant, but at others two or three elephants per mill are employed. It is a favourite occupation among visitors to go to see these huge animals at work. The dragging consists in the withdrawal of large trunks of trees from the thick slime in which they are lodged when floated in from the river. These trunks require to be placed on the side of the saw-mill so accurately that their four sides in turn may be trimmed, so that ultimately square beams are formed. The accuracy with which the elephant adjusts these is admirable, as also the way in which he stacks them afterwards by moving the ends alternately. Sometimes he takes up large logs on his tusks, holding them in position with his trunk. The principal accidents to which these valuable animals are liable are sunstroke, incised wounds from the saw, and broken tusks. The latter accident is serious, as rendering the animal much less valuable than before for timber work. The former is considered the most frequent cause of death. There can be no doubt, however, that the owners and men in charge have only very imperfect notions of elephant diseases, and err often in diagnosis, although they are excellent practical managers of these huge animals in health. They have

to contend with the attacks of Genesic Furor, known as Musthee, such as occur periodically in the male elephant. This they generally do, not as is usual in the transport service, by chaining the animal up until the fit is over, but by giving him extra work and lower diet directly there are indications of access of this physiological condition. Most of the mill managers have had some experience with elephants up the country in the great timber forests, and we hear of epizootics occurring periodically over large areas; probably Anthrax is generally the cause of the large fatality among elephants which results. There are times when, and parts of the country where, elephants constitute the only means of transport. They are therefore very extensively used by the Forest Department, and the military service is strong in this respect, especially at Thayetmyo and Tounghoo, the frontier outcast stations along the Irrawaddi and Sit Tang respectively. At the former place these animals have done well, and there have been interesting observations of parturition and copulation made. The fruitful connections are generally made by wild male elephants out in the jungle, when the females are lent for use to the Forest Department. Tounghoo has latterly proved a very fatal place for Government elephants, the exact reason for which has not been explained. Here is stationed an elephant mountain battery, a form of artillery exceptionally well adapted for so marshy a country. Occasionally severe and fatal accidents result to elephants in crossing deep, muddy rivers; they are apt to get into quicksands, or to damage their feet on rocky bottoms, or break their legs. There is a suspicion that the elephants purchased at Moulmein of late years have been defective in constitutional stamina, and that this is the cause of the fatalities at Tounghoo. Of course it is extremely difficult to detect latent systemic defects when purchasing animals about which so little is known as elephants, and it may be that a less price having recently been offered by Government (a state of affairs now altered), dealers were not tempted to dispose of good stock; but in the absence of skilled evidence as to the cause of death, no definite conclusion can be drawn. The Karen country is described as abounding in elephants, herds of which are domesticated and driven to regular pastures. The owners are said to be rather cruel in managing them, and use them occasionally, young and old, for carrying light loads. In Moulmein are resident some of our best authorities on the subject of elephants and their management; a visit to, and long conversation with, Dr. Slymm, a Dutch gentleman, formerly an officer in the Forest Department, afforded me especial pleasure. Elephants from Moulmein for India are generally marched the whole of the immense distance to Dacca, fording or swimming the numerous large rivers *en route*. Sometimes they, when on the march, are disturbed by jungle fires among bamboos and reed grass, which grows to an enormous height over a great part of the country, called razor grass from the sharpness of its edges. These fires look magnificent, but sound like file-firing or the *feu de joie* so well known to heavy field battery officers as upsetting the equanimity of the most stolid of elephants.

The central or Pegu division of Burma is probably one of the richest portions of the world, being the immense alluvial deposits of the Irrawaddi and Sit Tang rivers. The rice grows in great luxuriance over the immense plains, which are for the greater part under water during the rains, but here and there present hills on which are built the villages and towns. With care and industry, doubtless several crops of rice might be obtained every year from so rich a soil, but in a country where no man can starve, and no man likes work, such a thing as a second crop seems to be unknown. The rice when ripe is cut in handfuls, just against the grain head, and the long straw left standing in the fields; the cattle are turned out to graze over it, and then it is set on fire, except the very small quantity collected by

Government for its transport animals. The rice-fields are usually separated from each other by good stout banks, differing markedly in size from the ordinary bunds of Indian rice-fields; on these coarse grasses grow, which afford a certain amount of fodder. During the grazing season the cattle get very fat, but after unusually hot seasons they at times become very poor, and suffer much from want of nutriment. A similar contingency results from the prevalence of floods, which confine the cattle to the villages, and often drown many of them. Thus to famine and flood may be attributed many serious losses of cattle in Burma, but, as might well be anticipated from the description of the country, disease also claims many victims. Dysentery and Foot-and-Mouth Disease are prevalent at times, but Anthrax and Rinderpest are the most fatal scourges. The bullocks of Burma are a special and highly valuable breed, excellently adapted for draught, but slow and of moderate size. They have broad and short faces with concave profile, medium horns, often constricted at the base, stout, thick-set necks, large but short barrels, and good stout legs. They are of no special colours. Some of them were brought over to India for the 1883-4 camp of exercise at Bangalore; they did good work, but proved much slower than the Amrut Mahal bullocks. Burma is very rich in cattle, both bullocks and buffaloes. These animals are not subject to the country fever so fatal to some other species, and the latter especially are valuable for ploughing, and work in the deep tenacious mud of the rice-fields. They subsist in the thick, low-lying jungle which covers so much of the country, forcing their way with ease through the undergrowth of grass higher than their heads. They are especially large and well-developed, and may be seen climbing the almost upright bank of the Sit Tang in a wonderful way, or standing in the river threatening to charge the frail teak canoe in which the traveller slowly works up the course of the river on the way to Tounghoo. It is reported that bullocks are in some districts replacing buffaloes, and that the breed of the latter is much degenerating. If this be so it is much to be regretted, as there can be no doubt of the special value of buffaloes for agricultural work in marshy countries. Milk is expensive in Burma, owing to the inhabitants being Buddhist, and therefore allowing the full supply of natural nourishment to the calf, but this religious observance has materially tended to preserve the constitutional robustness of the breed. The King of Ava, or Upper Burmah, has a few camels, and his territory, which is much drier than that which has been captured by Great Britain, is not unsuited to those transport animals; but dire experience during the wars has proved that the camel does not live in the delta of the Irrawaddi. The breeding of mules has been suggested, but in many parts of the country the donkey is utterly unknown, and Government experience with mules imported from the Punjab and elsewhere, is that they suffer severely from epizootic outbreaks of fever of a very prolonged and fatal character. It was my special duty to investigate this fever, and I found it to be that first described by Dr. Griffith Evans as "*Surra*." I have, in my official report, entered into details concerning it. Here, as elsewhere, mules seem to be more liable than horses to Tetanus; some have been destroyed for Glanders or Farcy from time to time in Rangoon; Anthrax also annually exacts a certain tribute of victims. Thus specific disorders are not by any means rare in Burma among equine animals; during my stay, a case of Rabies occurred in an officer's charger. The ponies are justly celebrated, and are so well capable of performing the work of the country, and so well adapted to withstand the deleterious effects of the climate, that they almost entirely replace horses. Coming over from Madras, where the horses used are exceptionally large, one is struck with the smallness of these animals in Rangoon, and with the amount of work they will do in spite of this. The Burman pony works well in a hack ghari, is excel-

lently suited for various other forms of draught, negotiates fences very creditably with enormous weights up (as in the hunt, of which the Rangoon people are so proud; and in steeple-chases). Altogether he is a wonderful little animal, full of go, but reputed to be hard of mouth, inclined to shy, and slow at the walk. When imported into India he does very well for draught, and a pair looks well and fetches a good price, but they are liable to suffer from liver disorder, and have the reputation of not being suited to the climate of the greater part of the Indian peninsula; some are sent to Calcutta and the Madras coast ports, but at present the main export is to the Straits Settlements. Penang and Singapore used to obtain their supplies of ponies from Java, but the Acheen war interfered with this, and has established the line of traffic from Rangoon, and especially Moulmein. The Burman pony has long been known in India as the Pegu, but at present there are at least three kinds to be obtained in the market. Of these, the first is the *Shan* pony, periodically brought down by his owners from the table-lands of the states between Burma and Siam. I was so fortunate, when at Tounghoo, as to see a large number of these animals on the march down to Moulmein. At Rangoon I should have missed them, as but few came down there this year, in consequence, probably, of that line being too much exposed to attacks by the Burmans, against whom the Shans are in a state of rebellion. The ponies were in a grove annually occupied in this way. They were of sizes ranging to a little over twelve hands, very variable in colour, and also in physique. The most peculiar, those pointed out as true, pure-bred Shans, attracted my attention at once, *as being perfect little cart-horses*, with Roman noses, intelligent expressions, stout necks, low withers, upright, straight fore-legs, with short pasterns, large hairy fetlocks, and wide, open, flat feet; chests of most extraordinary breadth, round barrels, goose rumps, the tail being set on very low down, and short thick hocks. These cart-horse-like ponies are highly valued as weight-carriers, and fetch a high price in the Rangoon and Moulmein markets, but less admirably made ponies are the rule, and may be had at moderate prices, especially at the latter place. The second kind of pony is the *Mandalay*. He is altogether a lighter and rather larger animal, with a certain touch of eastern blood, probably derived in times past from chargers presented by European adventurers to the king or nobles of Burma as an acceptable form of donation. He is well-made and handsome, well suited for harness or riding purposes, with very good trotting powers, and excellent constitution. The *half-bred* is the third variety. He is got by Government stallions out of country pony mares, and proves much faster than the pure native animal—so much so that it has been found necessary to protect the latter by the formation of a Burman Turf Club, and the establishing of regulations as to terms of running for ponies according to caste. The pony-breeding operations are under the supervision of Mr. Frost. The half-breds fetch good prices, and are much appreciated by a large section of the Rangoon community; but there is another and large party which considers that the ponies in Burma are now less robust for work and sturdy in constitution than formerly. The Burmans are very appreciative of pony-racing, and large stakes are given by them for competition, and the ordinary Gymkhana prizes are hardly considered worth trying for. They ride well, in the usual Oriental style, with short stirrups, on a cushion without flaps, but thickened in front and behind to form pommel and cantle. They use the double crupper and standing martingale. The "*Cassay horse*," described as fighting against us in the Burmese wars, were something of this sort, their appearance being rendered formidable by tinsel-decorated wings fixed in front of the saddle on either side, and by elaborate and brilliant defensive armour. Of course, they were quite unable to stand against the cavalry of our armies.

As regards general management of the ponies, I concluded that it is capable of very much improvement. The usual stable is a wooden structure slightly raised above the ground level, and with a wooden floor ; the latter is liable to become rotten, and nasty holes form in it, the urine trickles through and saturates the soil beneath, which seldom receives any attention as to removal or disinfection. Accidents are liable to occur from kickers loosening the boards of which the stables are built, and getting their hind feet entangled in holes in the walls. The ordinary back stable is the ground floor of a house, usually very filthy and ill kept, utterly devoid of drainage. In Moulmein I observed temporary stables (with flat roofs) made of bamboo, for use by the batches of ponies brought down for sale. The staple food is unhusked rice (paddy), but experience has proved to the hack carriage owners the necessity for adding to this a certain amount of gram, chenna (Bengal gram) being that principally used. The paddy is not soaked or ground before giving, but placed in a kerosine oil tin and subjected to blows from a rough wooden pestle whereby its sharp points are broken off. The fodder is mainly "long grass," as cut on all sorts of land—marsh, laterite, in compounds, and so on. Hariali is seldom seen, for it grows only on the drier parts of the soil. At Thayetmyo it may be obtained in quantity, for there the red soil of Upper Burma begins to replace the thick alluvium of Lower Burma ; at this place the ordinary fodder grass, when hariali is not procurable in quantity, is the common kuskus. It is remarkable how the dhoob (hariali) springs up whenever the land becomes dry and is exposed to the sun ; I noticed this especially on the road leading from the then terminus of the Tounghoo railway to the banks of the Sit Tang, where, although no dhoob was detectable in the marshy ground, on either side, on the well-raised road, it grows in great luxuriance. Ensilage has been tried in Burma with more or less marked success. At Thayetmyo the preservation was excellent, but the process seemed to be expensive. At Rangoon it has been tried by both transport and commissariat. I was present at the opening of a silo of each. That of the transport was in laterite, non-absorbent soil, and under great pressure brought about by empty shells on its surface. These latter were found quite full of expressed moisture. The ensilage, after removal of the dark and mouldy layer always found on the surface, was found to be of a bright green colour, with a peculiarly pungent beery odour, and taste certainly not palatable to any of the animals to which it was offered,—even after it had been dried in the air not one of the animals would touch it ; but a fresh batch of Amrut mahal bullocks arrived from Madras, and ate it fresh and with relish. The silo of the commissariat was opened in the presence of Dr. Evans and myself, among others. It had been prepared in soil much more absorbent than the laterite, and no surplus moisture was found under the boards placed on it ; it was much lighter in colour than that from the transport silo, and Dr. Evans aptly hit on its colour and odour in describing it as like the contents of the stomach of a herbivore. Its smell when dry was pungent in the extreme. Thus these experiments supplement others in proving that fodder may be freely preserved in ensilage for use during a fodder famine, for instance, or for storing in an entrenched position where hay could not be preserved from fire. Ensilage will therefore have a distinct and special value in tropical countries as a preventive of the annual semi-starvation of the cattle in hot weather, but it will be long before the apathy of Indian natives and the carelessness of Burmese admits of it being considered a popular process in animal management. One valuable article of fodder in Burma is tank grass, a sweet, not rank, form of millet which grows in all parts of the country in shallow water. The Shans keep their ponies fat on this, always cutting it above the water level, and giving the sweet, fresh grass-tops in practically unlimited amount. If the

grass-cutter be allowed to bring this in, or the contractor to supply it, the whole stem cut at the bottom of the water is brought, and the lower part, covered with slime and brown, semi-decomposed leaves, is not good for horses ; nor should the whole grass cut in this way be preserved as hay. The mixed long grasses of Burma, when properly cared for, form excellent and valuable hay ; a good crop may be grown in a fair-sized compound in Rangoon, as Mr. Frost's excellently exemplified. The pony owners in Upper Burma, I am told, have a strange method of feeding their animals. They utilise an old teak canoe as a water-trough, through which a continuous stream is allowed to flow while the animal is feeding, and into which is put all the food, mixed. Thus the animal takes in water with his food, and never needs to be taken to drink. Mussauls—"condition balls" as the English groom would call them—are constantly given. They consist of vegetable tonics and aromatics of very numerous varieties in complex formulæ, the prescriptions of which are religiously kept secret. I procured the formula, in Burmese, of one of these mussauls, but when translated it was found to be so indefinite as to amounts and kinds of ingredients, that it could not be prepared in Rangoon with any exactitude ; besides, it consisted of many up-country drugs not found in the Rangoon markets. With regard to the diseases of ponies in Burma, they closely resemble those found in an average Indian practice, but I think lung and pleura disease is more common, and certainly the frogs of the hoofs are more often diseased ; these conditions being probably associated with greater moistness of the climate, and perhaps less care and attention to the animals than in most parts of India. Kumree—Paraplegia—was extremely prevalent among the battery horses when field artillery was stationed at Thayetmyo and Tounghoo. The losses were so great that these places were given up as horse-stations, and are now occupied by mule and elephant batteries. There is still in the lines of the former place a wall built to protect the animals from strong breezes, a reminder of the common name of the disorder, "a stroke of the wind." The Burmese like their ponies to stand in almost rampant position while feeding and while being groomed. The former result they secure by great downward slant posteriorly of the stalls, the latter by tying the head high against a tree, with a prominent clump of roots at its base ; these processes are considered to strengthen the muscles of the back. I saw one very small pony which was considered most valuable because of a "feather" on the top of the withers, under the pommel of the saddle, which was bound to bring the rider good luck. Burmese superstition, I am told, was recently shown in the case of an elephant born in the commissariat lines at Thayetmyo ; he was so light coloured that the natives thought he was a white elephant, and the women came and suckled him, but as he developed rapidly under this luxurious treatment, he became blacker, and so was deserted as a rank impostor no longer worthy of divine honours. The women are fond of small puppies, so much so, that they are reported to suckle them themselves. Dogs seem to thrive fairly in Rangoon ; there was a very excellent show of them and other animals on last New Year's day. It seems to me that as the weather gets warmer they suffer much from Eczema Rubrum. Pigs are fed by the commissariat for issue to the troops as pork, to constitute an occasional variety on the beef. The piggeries at Thayetmyo and Tounghoo are flourishing, and the progress in condition of their occupants, mostly bred by imports from the Andamans, is calculated with interest by Tommy Atkins. The pork is excellent, and, of course, clean fed. The Chinamen who abound so much at Rangoon are extremely fond of pig, which animal is, therefore, much more frequent than in India, and less neglected and outcast. The beef in Burma contrasts well with that of most parts of India. This is the more satisfactory as but little mutton is to be had, but hydatids seem very

common in it. Sheep do not thrive, and very few are to be seen. Mr. Frost started a sheep-run up country, but found that it could be carried on only under the strictest European supervision, otherwise the animals died off, or became incurably affected with Foot-rot. It only remains to notice that mild bull-fights are popular in the Tatang country to east of the Sit Tang ; that the Shan ponies are brought down as geldings, and there seems to be no opposition to emasculation of animals among these hill-men, and that, as believers in the transmigration of souls, the Burmese are opposed to compulsory slaughter of animals, and will not willingly take away their life unnecessarily. This is unsatisfactory, as causing an owner, when he considers one of his animals incurable, to turn it out to shift for itself, even though it be suffering from Glanders or other communicable disease.

MICROBES IN BOVINE PNEUMONIA AND EQUINE INFLUENZA.

SOME researches have been made by Professor Lustig, of the Veterinary School at Hanover, with a view to the discovery of the pathogenic microbe of Contagious Pneumonia of bovine animals (*Centralblatt für die Med. Wissensch.*, No. 12). He has inoculated suitable cultivating media with fragments of lungs in a state of recent inflammation, and also with lymph taken from the interlobular connective tissue of the inflammatory foci, and has succeeded in isolating in pure culture four varieties of microbes. One is a bacillus that liquefies gelatine and forms at the confines of the liquefied area pulverulent masses of a whitish-grey colour. When all the gelatine is liquefied the bottom of the vessel is occupied by a powdery deposit of the same nature. The bacilli are short and thick rods. The liquefied gelatine varies in tint dependent upon the proportion in which the other varieties of microbes are present. The second microbe is a micrococcus which does not liquefy gelatine, and forms at the surface a deposit something like the white of an egg in appearance ; the gelatine is gradually absorbed as this cultivation proceeds. The third is also a micrococcus, very like the preceding, only that it forms golden-coloured clusters. The fourth is micrococcal in form, and appears as coloured heaps of a yellowish orange tint, having a waxy look on the surface of the gelatine. It does not liquefy the medium, and grows better on potatoes. Inoculations made on a heifer gave mostly negative results.

Six kinds of microbes have been detected by the Professor in the fluids of horses affected with Influenza (*Centralblatt für die Med. Wissensch.*, No. 23). The one of the six that he regards as the germ of Influenza forms cultures having a tint varying between clear yellow and citron yellow, with a dull appearance. The islets of the growth spread laterally and downwards, chiefly from the centre. The rate of growth is very slow, but is more rapid in gelatine than in serum of the blood of the horse. It belongs to the class of aerobic bacilli. Inoculated under the skin of the pectoral region of a horse four years old, a culture of this microbe gave rise to a painful inflammatory oedema. The oedema afterwards formed a circumscribed tumour and became indolent, though finally it burst in two places spontaneously. The escaping fluid contained yellow and whitish flakes. This result is regarded as proving the pathogenic nature of the inoculated material.

PASSAGE OF BACTERIA FROM MOTHER TO FŒTUS.

AN experimental inquiry which may throw light on the relations of the fœtus to the mother in infectious diseases, says the *Lancet*, has been communicated to the Académie des Sciences by M. Pasteur for M. Koubassoff. A full abstract of the paper is reported in *L'Union Médicale* of July 18th. The mode of procedure was to inject various cultivations of the bacillus anthracis under the skin of a pregnant guinea-pig. A careful examination of the fœtus was made after the death of the mother. It was found that the bacilli of Anthrax always pass from the mother to the fœtus ; that the longer the time that elapsed between the inoculation of the pregnant mother and her death, the more numerous were the microbes in the fœtus ; that more bacilli from virulent cultivations pass over than from an attenuated virus ; that pathological conditions of the membranes of the placenta and fœtus hindered the passage of the bacilli from the mother to the fœtus ; that inoculation of pregnant females with a too powerful virus nearly always caused the death of the fœtus ; that inoculation with a virulent virus after the mother had been protected by satisfactory vaccination nearly always killed the fœtus—in other words, the fœtus cannot be protected by maternal inoculation.

GLANDERS IN THE HUMAN SUBJECT, AND THE BACILLUS OF GLANDERS.

AT St. Thomas's Hospital, London, a well-marked case of Glanders was admitted in July last, the subject being a cabman in whose stable Glanders was present. There appeared to be no point of inoculation ; the condition of the tonsils suggested inoculation there, but they seem to be peculiarly liable to suppuration in this disease. There was no nasal discharge, and no apparent disease of the lymphatic glands. When the patient was admitted the case much resembled one of Pyæmia secondary to disease of the right femur ; and it was only on the appearance of the eruption, and the somewhat profuse expectoration, that further inquiry elicited the history of Glanders in the man's stable, which important fact had been carefully concealed by the patient and his friends when giving an account of the illness, the last of the glandered horses having died two months previously. The man succumbed five days after admission, the symptoms during life and the necropsy proving the case to be typical of the malady. On the fourth day careful examination was made of the blood, but no foreign organisms could be detected in it. Some of the secretion from the pustules, however, was examined, after being stained with methyl violet and washed with dilute acetic acid, and under high magnifying power, bacilli resembling those of Tuberculosis were found.

ON A FEBRILE DISORDER COMMUNICATED FROM CALVES, AND ACCOMPANIED BY AN ECZEMATOUS ERUPTION.

T. FREDERICK PEARSE, M.D., Haslemere, writes to the *British Medical Journal* of August 8th :—A case having the above characteristics has lately been under my care, and I have particulars of two other cases. Similar eczematous patches, but of a very mild form compared to that of my case, are said to be frequent on the hands, arms, and face of those having

the handling of these diseased calves. The eruption on the animal is called by my patient (a castrator) "Ringworm;" but there are certainly not the same acuteness of symptoms or discharge in the animal as in the disease propagated to the human subject. It is more than doubtful whether the disease in the calves is of the nature of "Ringworm" at all. I have not had the opportunity of seeing the disease in calves.

The general symptoms, which came on somewhat acutely, were heightened temperature, varying from 99.5° to nearly 102° , with a frequent and weak pulse, moist but coated tongue, foul breath, a feeling of malaise, and general weakness. These have lasted for nearly a month, though they have somewhat improved during the latter half. My patient says that his brother suffered for six weeks during last winter in exactly the same way as himself.

The eruption consists of patches, somewhat like incipient boils, which burst, but, instead of discharging pus, pour out a very glutinous serous fluid, which quickly dries and forms a hard scab. There is considerable thickening and hardness of the skin around, and some slight enlargement of the lymphatic glands. The eruption is situated all round the chin, and under the jaws on both sides, with isolated patches on the forehead, eyebrows, and cheek. All round the lower margin of the face there is one continuous discharging surface. As soon as the scabs are removed, fresh discharge hardens and forms a scab again.

A question may, perhaps, be raised as to diagnosis. My patient was in perfect health before this attack, and never had an eruption of any kind about him before. It was treated by my *locum tenens*, in its early stages, for Eczema, but apparently without the slightest benefit. The surface is hardly extensive enough, or associated with sufficient inflammatory appearances, to account for the decided general symptoms. Again, the thickening around the base of the eruption is too hard for Acute Eczema, and there is not the same swelling of the skin. There is not the same pain or soreness, either, as in Acute Eczema. I have prescribed quinine (three or four grains), with full doses (30 minims) of nitro-hydrochloric acid; and, locally, I tried, first, dusting with iodoform-powder; but, finding apparently little benefit from this, it was changed for oleate of mercury, with oleate of zinc, as an ointment. The sores have considerably improved, and the man's general condition is nearly restored.

BURSÆ MUCOSÆ.

BY PROFESSOR F. EICHBAUM, OF GIESSEN.

(Continued from page 102.)

Bursa subcutanea on the upper and lower tuberosities of the anterior spinous process of the ilium (*Bursa iliaca lateralis*) are seldom absent. That on the superior tuberosity reaches a length of 10 ctm., and a breadth of from 4 to 5 ctm. The interior is frequently divided by one or more septa into unequal divisions. This bursa is sometimes united to that found on the inferior tuberosity, which is much smaller than the former, usually about the size of a walnut.

Bursa subcut. on either side of the Manubrium sterni. That found on the right was larger (length 5 ctm., breadth 4 ctm.) than that on the left. They were on the level with shoulder-joint over the origin of the cervical portion of the Panniculus carnosus and the anterior portion of the superficial pectoral muscle (*Porteo clavicularis* of the *M. pectoral. major* of man, and *M.p. transversus* of *Percivall*), and extends to the centre of the carniform cartilage

(Manubrium sterni), when they are separated from each other by a strong septum.

Bursa mucosa subcut. was in one instance found over the left Tuber. ischii. It was of large dimensions (8 ctm. diameter) and of a round form. There was a large bony enlargement (Spavin) on the left hock in this case. No bursa was present on the right side.

(b) *Subtendinous Bursæ.*

Bursa mucosa is frequently present over the superior spinous process of the fourth dorsal vertebra between this and the cordiform portion of the Lig. nuchæ. The bursa is oval in shape (long diameter 4 ctm.), and sometimes is divided into compartments; its internal surface is irregularly roughened with numerous papillary excrescences on its wall. In several instances the Ligamentum nuchæ (Nachenband) was united to the spinous process mentioned above, then the bursa was divided and intact on either side.

IV.—ANTERIOR EXTREMITIES.

(a) *In the Region of the Shoulder.*

EXTERNAL (*lateral*) SURFACE.—*Bursa mucosa subcutanea* on the tuberosity of the spine of the scapula under the fascia is only seldom seen, and generally divided into compartments or pierced by tendinous fibres.

Bursa mucosa subtendinosa, constantly present under the insertion tendon of the M. supraspinatus (subspinatus, *Fleming*; Postea spinatus, *Percivall*). Its size is about that of a walnut; its external wall is related to the above-mentioned tendon, and its internal to the depression on the tuberosity of the external part of the head of the humerus, to which it is intimately united. The inferior part of the bursa is frequently divided into larger or smaller spaces by connective-tissue membranes or fibres. Besides this, a small bursa is sometimes present on the bone behind this depression, and is separated from the former bursa by a septum.

Bursa mucosa is frequently seen under the short abductor of the arm (or Teres minor, *Fleming*, or Scapulo humeralis externus) and over the posterior part of the joint capsule, exactly over the posterior elevation on the head of the arm-bone (humerus). According to Franck,* this bursa—which is about the size of a walnut—is perforated by tendinous cords and communicates with the capsule of the joint by one or two openings. In some cases a union may be seen between this bursa and that under the M. supraspinatus muscle.

ANTERIOR SURFACE.—*Bursa mucosa* between the origin of the long flexor of the fore-arm (M. biceps brachii, *Fleming*; Flexor brachii, *Percivall*) and the coracoid process of the scapula (Proc. coracoideus). The bursa is about the size of a hazel nut, and surrounded by the fat which is found in this cavity.

Bursa mucosa under the tendon of the long flexor of the arm (Flexor brachii) as it passes over the bicipital groove (Rollfortsätzen).

Bursa intertubercularis.—The wall of this bursa passes from the periphery of the cartilage covering the bicipital ridges to the tendon over whose internal surface it passes, and to which it is intimately united; it projects loosely over the sides of the tendon and passes to the posterior surface. The bursa is covered on both sides by the insertion branches of the M. supraspinatus, and divided from the shoulder-joint capsule by the bolster of fat which lies at its posterior surface.

INTERNAL (*medial*) SURFACE.—*Bursa mucosa* under the M. coraco brachialis (Coraco humeralis, *Percivall*) is constantly present, and commences under the origin of this muscle on the Processus coracoideus, and passes

* "Anatomie der Hausthiere." 1871. S. 421.

with the tendon over the lower part of the tendinous portion of the M. subscapularis, on whose posterior border it ceases.

Finally, we would mention that there are several small Bursæ synoviales found on the anterior and posterior surfaces of the capsule of the shoulder-joint.

In the region of the Ulna joint.

(a) *Subcutaneous Bursa.*

Bursa mucosa on the posterior surface of the olecranon is not constant, but very frequently present. In size, it varies from that of a walnut to an apple, and is often divided by septa into several compartments. Its position is inclined to the outside of the Proc. anconæus.—*Bursa olecrani.*

Bursa mucosa over the elevation on the outer side of the head of the radius (for the attachment of the external lateral ligament of the joint). It is smaller than the last-mentioned bursa, and varies considerably in size and position. Sometimes it is about the size of a walnut, and its walls smooth; at others it is larger, and divided into incomplete compartments by a fenestrated tissue, has numerous connective-tissue fibres and vessels passing through it, and possesses numerous uneven, fatty, reddish-coloured papillary eminences on its walls.

(b) *Subtendinous Bursa.*

EXTERNAL (*lateral*) SURFACE.—*Bursa mucosa* under the insertion tendon of the M. anconæus longus (caput magnum of the Triceps extensor brachii, *Percivall*), between it and the lateral elevation of the Processus anconæus; shape, oval. Diameter, 2.5-3 ctm.

Bursa mucosa under the origin of the external flexor of the metacarpus (M. extensor carpi ulnaris of man, and Flexor metacarpi externus, *Percivall*). Its size is between a hazel and a walnut. Its position between the external lateral ligament and posterior surface of the lateral ligament elevation on the head of the radius, on the one hand, and the above muscle on the other. As Franck (*loc. cit.*, p. 427) observes, it is very frequently, but not always, in communication with the elbow-joint capsule by an opening from 1.5 to 2 ctm. broad.

ANTERIOR SURFACE.—*Bursa mucosa* under the insertion tendon of the M. biceps brachii. It is situated between the two insertions of this muscle, is elongated in form, 4 to 5 ctm. long diameter. It commences immediately over the upper insertion tendon, and passes obliquely under the other branch of the tendon and under the internal lateral ligament of the radio-humeral joint, on whose posterior border it ceases. No communication has been found between this bursa and the joint capsule. The bursa is sometimes absent, in which case the two branches of the tendon are united together.

Bursa mucosa under the insertion of the short flexor of the fore-arm (M. brachialis externus h.s., Humeralis externus, *Percivall*). It is oval in shape, about the size of a walnut, and placed between the above-mentioned muscle and the internal (medial) lateral ligament of the radio-humeral articulation on the one side and the bone on the other.

INTERNAL (*medial*) SURFACE.—*Bursa mucosa* situated between the insertion of the long extensor of the fore-arm (M. extensor cubiti longus; Scapulo-ulnaris of *Percivall*), on the internal surface of the Processus anconæus and the tendon of the middle extensor of the fore-arm (*Fleming*), (M. anconæus internus; caput parvum of *Percivall*). It is about the size of a walnut.

Bursa mucosa commences at the anterior bony process of the olecranon, and passes obliquely backwards along the internal surface of the Processus anconæus, under the tendon of the M. anconæus internus (caput parvum, *Percivall*), and ends just where this tendon is inserted in the bone. It is

oval in shape, and frequently divided into two or three compartments by incomplete membranes.

Bursa synovialis under the origin of the flexors of the foot (Flexor pedis perforans and perforatus, *Percivall*) and the internal flexor of the metacarpus (Flexor metacarpi medius internus, *Percivall*). It is very extensive, and is situated immediately under the radio-ulna joint at the posterior part of the radius, and extends partly on to the internal surface of the ulna. The inferior border of the bursa extends to about 3 ctm. below the joint. It communicates with the joint capsule by a comparatively large opening.

Bursa mucosa under the origin of the flexors of the metacarpus (Benger des Vordermittelfusses) (Flexor metacarpi internus, *Percivall*), immediately behind the roughened elevation on the head of the radius for the insertion of the internal lateral ligament of the joint. It lies between the muscle and the joint, is round in form, and about the size of a walnut. In many cases this bursa is united with that last mentioned, in which case it communicates with the joint capsule.

Carpus.

ANTERIOR SURFACE.—A *subcutaneous mucous bursa* is frequently found over the os magnum (*os capitulum*). It is about the size of a hazel-nut; its walls are composed of close connective tissue, and contains a comparatively large quantity of yellowish synovial fluid. Others may be found over each of the eminences on the inferior part of the anterior of the radius.

Tendon sheath of the anterior extensor of the phalanges (Extensor pedis, *Percivall*), commences when the branch of tendon (Phillipp'schen muskels) is given off from the Extensor pedis to the Extensor os. suffraginis, about 15 ctm. above the carpal joint, passes downward along the tendon-groove in the radius and anterior of the carpus, and ends below the roughened prominence on the superior end of the metacarpal bone. It loosely surrounds the tendon of the Extensor pedis, and externally it is strengthened by the deeper layer of the fascia of the fore-arm, with which it is firmly united. The tendon which glides in the sheath possesses a "mesotenon" of about the width of three fingers, which takes its origin from the internal (medial) border of the sheath.

Tendon sheath of the oblique extensor of the metacarpus (Extensor metacarpi obliquus, *Percivall*), commences on the lateral border of the Extensor metacarpi magnus (*Percivall*) (Schienenbeinstreckers), about 8 ctm. above the knee-joint. It passes obliquely from above downwards and inwards in apposition with the sheath of the Ext. metacarp. magn., then in a groove formed for the ligament of the joint gradually across the joint to the head of the internal small metacarpal bone. The outer wall is strengthened by fascia, and possesses a "mesotenon" about 1 ctm. broad, and is united to the anterior surface of the tendon, so that, instead of a vagina, it is only an elongated bursa vaginalis.

Tendon sheath of the anterior extensor of the metacarpus (Extensor metacarpi magnus, *Percivall*), commences about the same level as that of the Extensor pedis, about the superior part of the inferior third of the radius, passes downwards along the central groove on the anterior part of the radius and the capsular ligament on the anterior surface of the carpus, and terminates on the lower row of carpal bones. The sheath possesses a double mesotenon, which passes to either side of the tendon and covers the whole of it.

Under this sheath, but not communicating with it, there is usually a small bursa situated above the os magnum.

EXTERNAL (*lateral*) SURFACE.—*Bursa mucosa subcutanea*, varying in size, situated over the external elevation on the lower end of the radius for the insertion of the lateral ligament of the joint.

Tendon sheath of the lateral extensor of the phalanges (Extensoros suffraginis, Percivall), commences about $3\frac{1}{2}$ inches above the carpal joint on the external surface of the radius, passes downwards over the lateral ligament of the joint, and ceases on the superior end of the metacarpal bone. It is related, on its external surface, with the annular ligament of the knee. At its inferior half a mesotenon about 1 cm. broad passes out from the tendon.

Tendon sheath of the insertion branch of the external flexor of the metacarpus (Flexor metacarpi externus, Percivall). The sheath commences with the tendon on the superior border of the trapezium (os accessorium), passes along the groove on the outside of the bone obliquely forwards and downwards, and terminates in the region of the unciform bone (os hamatum). The internal wall of the sheath lies immediately on the capsular ligament between the radial and metacarpal rows of the carpal bones, and there is a communication at this point between the two. The external wall of the sheath is covered and strengthened by the annular ligament, and partly by the lateral ligament.

POSTERIOR SURFACE.—*Tendon sheath for the tendon of the superficial and deep flexors of the phalanges* (Flexor pedis perforatus and perforans, Percivall) is very large, and covered by the annular ligament (carpal sheath) of the knee. It commences above, just under the origin of the tendinous ligament, which joins the perforatus above the knee (superior suspensory ligament), about 10 cm. above the joint, passes downwards over the radius, back of joint, and the inferior tendinous ligament (tendo-subcarpal ligament), and terminates where this ligament joins the perforans tendon. On its internal border it is in apposition with the sheath of the Flexor metacarpi internus (Percivall) from where it sends out a broad "mesotenon" on to the tendons passing through it. It covers the tendons, and passes as a blind pouch between them (4 to 5 cms. long) to about the lower part of the joint. Externally it is in apposition with the internal surface of the trapezium, and its superior part is covered by the Flexor metacarpi externus (Percivall). The posterior wall is in contact with, and joined to, the internal surface of the (carpal sheath) annular ligament. The external fibrous layer is wanting on those parts of the sheath which project above and below the annular ligament (endpforten-endgates).

INTERNAL (medial) SURFACE.—*Bursa mucosa subcutanea* over the head of the internal small metacarpal and trapezoid bones. It is about the size of a walnut, and has several times been found.

Tendon sheath of the Flexor metacarpi internus (Percivall) commences about a hand's-breadth above the knee-joint. It is situated on the internal surface of the radius, then passes downward towards the posterior surface of the carpus, bounded by the annular ligament, and terminates on the head of the internal small metacarpal bone. It gives off a "mesotenon" about as broad as a finger to the tendon passing through it.

In the region of the Phalanges (fetlock, pastern, and foot).

ANTERIOR SURFACE.—*Bursa mucosa* on the anterior surface of the inferior end of the metacarpus and metatarsus respectively. It is situated over the articular elevation between the capsular ligament and the Extensor pedis tendon, with which the bursa is intimately united. It is oval in shape, and about the size of a walnut (length, 2.0 to 2.5 cm.; breadth, 1.5 to 2.0 cm.), and sometimes communicates with the joint capsule (Franck, *loc. cit.*, p. 318).

Bursa mucosa under the tendon of the lateral extensor of the phalanges (Extensor os suffraginis, Percivall), and over the anterior surface of the fetlock joint. It is about the size of a hazel-nut.

SIDE SURFACES.—Besides a *Bursa mucosa subcutanea*, which is often present on the external surface of the fetlock-joint, we constantly find a *Bursa mucosa subtendinosa* on both sides of the phalanx prima (os suffraginis), between the bone and the tendinous branches of the suspensory ligament, which passes obliquely across the bone to strengthen the tendon of the Extensor pedis. It commences at the origin of these ligaments on the lateral surfaces of the sesamoid bones, and extends to the lower part of the upper third of the bone, and in some cases to its centre. The internal wall of these bursæ are intimately connected with the ligamentous structures of the sesamoid bones, and the periosteum of the os suffraginis; the external wall is united to the tendinous structure above it, in a similar way to the bursa on the internal surface of the hock. A small bursa about the size of a bean is often found under the ligament just before it joins the Extensor pedis.

POSTERIOR SURFACE.—*Bursa mucosa subcutanea* on the posterior surface of the fetlock-joint. It is frequently only the size of a bean, and surrounded by compact subcutaneous connective tissue.

Bursa vaginalis on the posterior surface of the tendon of the superficial flexor of the phalanges (Flexor pedis perforatus, *Percivall*) at the back of the fetlock-joint. It is united to the centre of the tendon by loose connective tissue, and towards the side is connected to the sheath of the Flexor pedis perforans by an opening about 10 ctm. long. Its lateral walls pass into the anterior walls of the

Tendon sheath of the deep flexor of the phalanges (Flexor pedis perforans, *Percivall*; great sesamoid sheath, *Fleming*). This commences *præter propter* 10 ctm. above the fetlock-joint, passes then downward over the posterior surface of the suspensory ligament, sesamoid bones, os suffraginis, and terminates about the centre of the os coronæ. The anterior wall of the sheath is (free above to below) in relation with the tendinous sheath of the Flexor pedis perforatus—which encircles the Flexor pedis perforans—the posterior surface of the sesamoid bones, the inferior suspensory ligaments, and, finally, with the capsular ligament of the pastern-joint (first interphalangeal articulation, *Fleming*).

At about the centre of the inferior suspensory ligaments, a cylindrical membrane (mesotenon) passes on to the tendon; however, it is sometimes composed of more than one fenestrated layer, in which case they take their origin from either side of the middle inferior ligament. The posterior wall is intimately bound to the perforatus tendon, and passes downwards as far as the bifurcation; it then forms a blind pouch below (*cul-de-sac*), between the two branches of the tendon on the one hand, and the ligaments between the lateral cartilages and os suffraginis on the other. Frequently, however, this sac-like portion of the sheath is divided in its centre by a membrane, forming a special small sheath for each insertion-branch of the tendon (*cf.* Dieckerhoff, "Die Pathologie und Therapie des Spat der Pferde." S. 185).

After the division of the tendon into its branches, the posterior wall of the sheath passes downwards as a thin membrane, filling the triangular space, and finishes on the bulbs of the fatty frog (endgate-endpforte). The lateral walls of the sheath are small and weak, but are strengthened by the fibrous layer which binds the tendons down to the fetlock, and behind the sesamoid bones by the annular ligament, and on the posterior of the pastern by the tendinous girdle (Schaugurte, *Leisering*), and, finally, the lower part is bound down by the fibro-elastic membrane attached to the hoof and the pastern bones (Huffesselbrinband). Between the insertions of these membranes there are spaces (intermediary gates—Zwischenpforten), viz., a small superior space between the annular ligament and superior branches of the tendinous girdle (membranous expansion); an inferior space, about 3 ctm. long, between the superior and inferior branches of the last-named expan-

sion, through which, under pathological conditions (excessive secretion), the sheath can be distended.

The cylindrical lumen of this sheath has several projecting *cul-de-sacs*, the largest of which is superiorly placed between the posterior surface of the metacarpus and metatarsus respectively, on the one hand, and the above-mentioned membranous expansion of the perforatus tendon on the other. It is placed in the triangular space formed by the two insertion branches of the suspensory ligament and the sesamoid bones. The anterior wall is separated from the capsular ligament of the fetlock-joint by adipose tissue, the lateral walls reach to about the level of the border of the suspensory ligament, and are here covered by loose connective tissue (end-gates endpforten). Further, on either side of the fetlock, lower down, are two smaller *cul-de-sacs*, which are placed in the intermediary spaces mentioned above, and in which may frequently be found tendinous fibres and small folds, which divide the diverticle more or less into numerous incomplete compartments.

Bursa mucosa under the insertion of the deep flexor of the phalange (Flexor pedis perforans, *Percivall*; *bursa podotrochlearis*, Brauell*). This bursa is separated from that last mentioned by a thin membrane. It commences on the posterior border of the navicular bone, and extends to the insertion of the perforans tendon into the pedal bone. It is a completely-closed sac; the anterior wall covers the navicular bone, the sides and inferior surface of the flexor tendon, and superiorly it passes from the navicular bone to the tendon which completes the sac. No communication has been discovered between this bursa and the pedal joint.

(*To be continued.*)

Proceedings of Veterinary Medical Societies, &c.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of this Association was held at Skindle's Hotel, Maidenhead, on July 31st. The members assembled for luncheon, by invitation of Mr. J. F. Simpson, at his residence in the High Street, and afterwards held their meeting in the hotel saloon.

A letter from Dr. Fleming, thanking the Society for electing him an honorary associate, was read.

Re Clause IX., Supplementary Charter, 1876.

The first business on the agenda was to receive a report from kindred Associations re Clause IX., Supplementary Charter, 1876.

The SECRETARY reported that, in accordance with a motion of Mr. J. F. Simpson, to ask the co-operation of other societies in this matter, he had written to all the secretaries of different Associations in the three kingdoms, and from all except the North of Ireland Association he had received replies, which in nearly every instance were in favour of rescinding the alteration of Clause IX. so that the rights and privileges of members of R.C.V.S. be preserved.

The SECRETARY then moved that he be instructed to forward to the Council of the R.C.V.S. a resolution to this effect: "That it is absolutely necessary for the welfare and encouragement of the R.C.V.S. that they have free and unlimited choice in the selection of members of the profession to serve on the Council. The members of this Association therefore petition the President and Members of the Council to take the necessary steps to

* "Die Chronische Fussrollenentzündung." Magazin für Thierheilk., 1845.

have Clause IX. rescinded of the Supplementary Charter, granted by Her Majesty the Queen on the 23rd day of August, 1876.

Mr. WALKER (1st Life Guards) seconded.

Mr. SIMPSON (Windsor) said that what the various Associations throughout the country thought of this matter was much the same as the propelling power which influenced the Government of the country. What the rank-and-file of the electors of the country thought was the stimulus that acted upon the Prime Minister and his coadjutors in the Cabinet ; and what the veterinary medical associations throughout the kingdom thought was really the impetus that moved the Council of the R.C.V.S. The Council had been moved upon this question, and, without a dissentient voice, were good enough to sanction the selection of a Committee which he (Mr. Simpson) proposed. That Committee had now got the work in hand. It was a large and influential committee, and he hoped their labours would result in the removal of what he considered a very great injustice to members of the profession. The matter, he said, was now ripe for discussion, and he assured them that personally he would use his utmost exertions to secure the legitimate right of every man who is a member of the College being eligible to sit upon the Council. By the Charter of 1844 all members were eligible for a seat, and they did think it was very hard that they should be deprived of their rights almost without discussion. He (Mr. Simpson) valued his seat on the Council, and knowing as matters now stood that next August he would be ineligible by the operation of Clause IX. from any longer retaining his seat, he had taken time by the forelock and qualified himself, let what would happen, by passing the Fellowship Degree. He did hope, however, that before then a satisfactory solution of this important question would be arrived at by the Council.

Professor PRITCHARD asked if it would not be well, even after what Mr. Simpson had told them, to allow the resolution proposed to go to the Council.

Mr. SIMPSON : Certainly ; I rose almost to apologise for having forestalled the Association.

Professor PRITCHARD : Then I would add, that the Council be specially asked whether it is legal. You recollect the remarks I made at the last meeting of the Association I had the honour to be present at. I doubted very much then whether a member of the Royal College of Veterinary Surgeons could be shut out by any subsequent Charter, and I more strongly hold the opinion now. I should like to add that to the resolution : That the Committee be asked whether legally any member of the profession can be shut out from becoming a member of the Council.

Mr. SIMPSON (Maidenhead) argued that inasmuch as no Local Board or Town Council could pass bye-laws which would contradict an Act ; in the same way, the College had no right to a Supplementary Charter contradictory to the spirit of the original Charter. It might be, however, that a Supplementary Charter had all the powers of contradicting an original Charter ; that he did not profess to give an opinion about ; it was a question of law. He and others had been taunted with the suggestion that to those who were only members it was a question of sour grapes—that they had not obtained the fellowship, and therefore spoke against it. Having this partly in view—although it was not wholly his object—he went in for a Fellowship Degree, so that he could now discuss the matter without prejudice. He supported the resolution of Mr. Kidd, and he thought the discussion of a Committee of the Council was the right way of arriving at a satisfactory conclusion. The Committee had been fairly appointed, and represented all classes of the veterinary profession, and he felt perfectly certain that when the Committee had had one or two meetings they would be able to report to the Council

that Clause IX. did not meet with the approval of the members of the profession generally.

Mr. DARLING remarked that if the original Charter was not annulled when the other was brought forward, it would hold good.

The CHAIRMAN said he thought they might congratulate themselves so far on the steps that had been taken in reference to this matter. As Mr. H. Simpson had told them, he (Mr. Simpson) had somewhat forestalled them in the matter by bringing it before the Council, and for that they had to thank him. He had done it with a good motive, and the result had been extremely satisfactory, inasmuch as there was such a representative body to take it into consideration. They would give it fair and just weight, and he had no doubt that that Association, as a representative body of the profession, would be perfectly satisfied with the ultimate result of their consideration. The resolution of Mr. Kidd would actually place before the Council the opinion of the whole Associations.

The resolution was then put and carried unanimously.

The Next Meeting.

It was decided to hold the next meeting of the Association in London, and a small committee was appointed to carry out the arrangements.

The Title of "Castrator."

Mr. SIMPSON (Maidenhead) moved the following resolution: "That in the opinion of this Association unregistered practitioners who assume the title of 'Castrator' are offenders under the Veterinary Surgeons Act." At their last meeting, he said, he had referred to this matter, and had stated that he would like to see a test case put forward to decide once and for all whether a man who was neither a member of the R.C.V.S. nor a registered practitioner had the right to assume the title of "Castrator." In bringing forward this motion, *prima facie* it might seem that he was taking a very selfish view of the matter. For this reason: There were a class of men called "Castrators" who relieved a member of the R.C.V.S. of some of those unpleasant duties which, but for the existence of these men, would fall upon him; and he confessed that he should be disposed to shut his eyes to what they did in the way of castration if it were not for the fact that they interfered with the practice of the legitimate veterinary surgeon. If the man would confine himself to what he professed to be they would not be disposed to complain, but too often, when employed to do the simple operations to which he had referred, the castrator did not hesitate on gaining an *entrée* into the farmyard, to venture to do that which the veterinary surgeon would hesitate to do, bearing out the old maxim that "fools will rush in where angels fear to tread." Mr. Simpson held that an unregistered man who castrated was an offender under the V.S. Act, inasmuch as he practised veterinary surgery, and the Act distinctly said that no man should assume any title which would lead the public to suppose that he had any special qualification to practise veterinary surgery.

Amongst those who took part in the discussion which ensued were Messrs. Hill, Barford, Professor Pritchard, Mr. Walker, the Secretary, Professor Robertson, Messrs. G. A. Lepper, Darling, Irving, and Mellett.

One of the principal points raised was the question of who should prosecute men of the class referred to by Mr. Simpson if they were considered to be offenders under the Act. The reluctance of local people to undertake the task was pointed out, and also the difficulty experienced by the Council in getting such people to give evidence in cases which the Council desired to take up.

Professor ROBERTSON, confining himself more closely to the resolution, said there was a difference of opinion as to whether a man who called him-

self a castrator was an offender against the Act of 1881. He did not think the Act was intended to prevent a man calling himself a castrator, for the Privy Council was exceedingly adverse to tampering with vested interests. They might consider themselves fortunate in obtaining the Act as they did in the short hours of the morning at the end of a Parliamentary Session, when it might have been blocked. They had to give something for what they had got, and he apprehended that this complaint against the castrators would not be considered by the Privy Council, and it had better be left alone, for he thought it was a weak case. Knowing what the opinion of the Privy Council was when the Act was framed, he did not think it was intended to exclude castrators. At the same time he did not think they could prevent any man from acting as a veterinary surgeon. According to his idea the Act only protected the title (*vide* clause 16 of the V.S. Act).

Professor PRITCHARD partly endorsed Prof. Robertson's remarks. They all knew, as Mr. Barford had said, that hundreds of persons, prior to the obtaining of the Act, performed the operation of castration; but if those persons had come forward and shown that they had been in the habit of performing this operation, they could have been registered, and no one could have stopped them. He thought, however, with Mr. Simpson, that a test case should be taken, as they would then know exactly where they were. There could be no doubt that the operation was a surgical operation, and it belonged to the veterinary surgeon more particularly than to any other medical man. And if he were to be protected in one thing he should be in another. If a man termed himself a castrator, and was allowed to go into the farmyard and insinuate himself further, it was robbing the veterinary surgeon of his bread and cheese. They ought to know whether they were within the bounds or without them. A test case would not cost very much money, and he should be happy to subscribe towards it.

Mr. LEPPER thought that if a case went before the Privy Council, they would translate it very liberally, and would not grant a case against the castrator.

The motion of Mr. Simpson (Maidenhead) having been seconded by Mr. WALTER (1st Life Guards), was put and carried *nem. con.*

The Title of Veterinary Surgeon.

Mr. WALKER (Oxford) moved the following resolution: "That this Association, being of opinion that it is illegal for unqualified persons (even although registered) to call themselves by the title of veterinary surgeon, would ask other societies to co-operate for the purpose of ascertaining, by means of a test case or otherwise, whether it is so, and whether such persons can be prevented from so doing. He laid before the meeting what he considered was the interpretation of the Act of Parliament on the question. To his mind, he said, it was clearly defined by the Act who were entitled to call themselves by the title. A veterinary surgeon and a member of the R.C.V.S. meant one and the same thing. He was of opinion that a veterinary surgeon was a person who had studied at one of the recognised colleges, conformed to their bye-laws, passed certain examinations satisfactorily, and so become entitled to the name, and him alone; whereas the unqualified registered man was only registered as an existing practitioner, and recognised by that title, and was no more entitled to call himself a veterinary surgeon than the unregistered man.

In the discussion which followed, Mr. HILL pointed out that the Privy Council had ruled that the "existing practitioners" were, to all intents and purposes, veterinary surgeons.'

Mr. SIMPSON (Maidenhead) held an opposite view to the Privy Council, and said that the arguments Mr. Walker had that afternoon used were un-

assailable. The Act throughout rang with a distinction between a M.R.C.V.S. and an existing veterinary practitioner. He did not think it was of any use, however, to ask for a test case.

Mr. KIDD seconded Mr. Walker's motion. If, he argued, a registered practitioner was entitled to call himself a veterinary surgeon, and place himself on an equality with a M.R.C.V.S., why had he not a right to a seat or a vote at the Council?

Professor ROBERTSON said the Council had all been of the same opinion, but the Privy Councillors were the sole interpreters of the Act.

Mr. WALKER withdrew that part of the motion referring to the test case.

Mr. VERNEY thought both proposer and seconder were in error. He thought the existing practitioners were entitled to all things under the Act, with the distinction that they were upon a separate register.

Mr. WALKER said it must be a mistake to register these men as existing practitioners; if they were veterinary surgeons at all they should be registered as such.

The motion was put to the meeting and lost.

Stable Management.

This was the subject of a lecture which Professor Pritchard had promised to give, but owing to the length of the discussions the lecture had to be postponed.

Professor PRITCHARD kindly promised to give the lecture at the next meeting in November.

A vote of thanks to the Chairman was proposed by Professor PRITCHARD, seconded by Professor ROBERTSON, and supported by Mr. SIMPSON, of Windsor; and the last-named gentleman, referring to the discussions which had taken place, assured practitioners that their interests were not ignored by those representing them at the Council.

The CHAIRMAN, in reply, said that whilst they could call their meetings three times a year, and get such a number of the members of the profession together who were able, with kind and goodly feeling and good common sense, to take up questions of importance such as those of that and previous occasions, they might rely that one of the objects of their association would be achieved—and that was to do good to the profession at large, and not alone to themselves.

The proceedings then terminated.

H. KIDD, *Hon. Sec.*

SOUTHERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of this Association was held at the Bull Hotel, Rochester, on June 26th, Mr. J. B. Martin, of Rochester (President), taking the chair. Several visitors attended the meeting; among them was the Mayor of Rochester (Alderman Woodhams).

The PRESIDENT delivered his inaugural address as follows:—

In accepting the office of President, it is usual to address a few words to the members of the society; and I may say at the outset that if I had been present at the last meeting, when the officers were elected, I should not now be assuming this responsibility, as every man, in taking office, should have confidence in his ability to carry the duties out efficiently. Now I feel quite conscious of my inability to do this both to your satisfaction and my own; at the same time, I do not wish to shirk my share of the work and responsibility, as I know in being elected President is the greatest honour we can confer upon each other. This I fully recognise and appreciate, and sincerely

thank you for the confidence reposed in me, and I shall endeavour to infuse that enthusiasm, zeal, and energy into the members of our Association which is so much needed, as it is by each individual effort, and each member taking that deep interest in the advancement of the profession, that we can ever hope to make any progress. Most of the work is left to a few workers, while a great number of the members have no higher aspirations and ambition than the £ s. d. element. I confess it is difficult to understand the apathy and supineness existing among the profession, and wonder must be expressed at the members not making some sacrifice in order to attend the meetings more frequently, and entering into the discussions of the different subjects brought before us. A proof of this apathy was afforded at our last annual meeting in May. Not only are they dead to what is taking place, and absent themselves, but they do not even take sufficient interest in the progress of the profession to record their votes for the election of members of Council when voting papers are sent to them. In 1884 there were fifteen candidates for Council, six were successful, and recorded 3,972 votes; the total number of votes for the fifteen candidates was 6,167. Now in May, 1885, there were thirteen candidates, six being successful, and there were recorded 1,976 votes, showing a less number of votes for six successful men of 1,996 votes, and the total number of votes for the thirteen candidates was 3,154, showing a decrease of 3,013 in 1885 compared with 1884. Now we in the south must be up and doing, as all the successful men elected to represent us on the Council were gentlemen from the north, and not one from London or the southern counties; therefore it is absolutely essential that we should organise ourselves for the next election, and we must begin soon enough to even hope to cope and hold our own with our shrewd, energetic friends in the north, who have an immense numerical preponderance over us. I would suggest an amalgamation with other societies, *i.e.*, the London Central, Eastern Counties, and Royal Counties; that our next meeting be in London, and the Presidents and Secretaries of each be invited to attend. Our society was first formed with the laudable object of strengthening the hands of our indefatigable friend, Dr. Fleming, and to assist him in his untiring efforts to carry to a successful issue the Veterinary Surgeons Act, which never would have become law but for his courage, energy, and influence. This is a grand and noble example to other members of the profession to work for our advancement. Although he has his detractors, there has not yet been a man among us who has been so distinguished and recognised by so many leading scientific societies for his talent. I believe the accomplishment and success of this Act was really the cause of his recent illness, which we all deplore, for we feel the need of his presence and assistance at these meetings. The Veterinary Surgeons Act has been condemned by many because it has not produced the immediate effect they expected of suppressing empiricism directly it became law. The best mode of effecting this is to make yourselves proficient in science, and show the public your superiority in usefulness in our calling. Now the public do not understand the meaning and working of this Act of Parliament. When the Bill went before Parliament, they would not allow, nor did we wish, that the unqualified man should be prevented following the only means he had of subsistence, which would be cruel; but it was made lawful that those who had been in practice five years should be able to register by paying a fee; and it is quite natural for those men who had thus qualified themselves to take advantage of and turn to account the privileges gained; they give evidence in courts of law now, and swear they are properly qualified veterinary surgeons. This is the point the legitimate man complains so bitterly of, as he is identified with the quack, and suffers in reputation.

A case in point occurred about two months since. A farmer was sum-

moned before the magistrates for having sheep on his farm afflicted with Scab, and failed to give notice to the Local Authority of the existence of this contagious disease; the veterinary inspector gave his opinion that they were so affected. And it is a fact that they came from a district, a few months before, where another veterinary inspector had declared them affected with Scab; but in court an unqualified man, who had not even registered, swore on oath that he was a member of the Royal College of Veterinary Surgeons, Edinburgh. Of course we know there is no such an institution.

He gave evidence that the sheep were free from Scab, and the case was consequently dismissed; and under ordinary circumstances these diseased sheep would be at liberty to go to any public market and disseminate this contagious disease, and the veterinary profession would be identified with this man and so suffer in reputation. It is said that in all Acts of Parliament a coach and four can be driven through them, so we must submit to these annoyances and anomalies and take a higher view. As we must make certain sacrifices, it is gratifying to know we exerted ourselves with the laudable object of leaving the profession better than we found it, and the future generation of veterinary surgeons and the public will be benefited.

These are matters affecting the prosperity of the farmer, and I think they and the public should be invited to attend our meetings, and enter into the discussions on the different subjects, and give them an opportunity of telling us of our shortcomings. Veterinary medicine and agriculture are kindred sciences, and their interests are very closely connected; and the closer their union the greater will be the advantages derived from each, as the veterinary surgeon can give valuable information on the injudicious breeding and feeding of stock, for on the health of his cattle depends largely his success, for high farming on different soils has a very injurious and poisonous effect—especially on sheep, of which hundreds die from this forcing system; and it is of the highest importance that we should both understand the laws of nature, in order that we may know the why and the wherefore of all our actions, and not be groping in the dark. We should do things on scientific principles, and if there is failure, we should search out the cause and know the reason; and we should not go on doing things merely because our fathers did so before us. I think we can prove to the public that we are a useful profession, and especially to the farmer, whose prosperity we have enhanced; for the veterinary inspectors, during the prevalence of certain contagious diseases, were instrumental, as far as their skill and knowledge extended, in lessening or suppressing, if not entirely eradicating from this country, these terrible disorders which have been so destructive to our flocks, and consequently ruinous to our stock-owners. We, travelling all over the country to every farmyard and marsh in our respective districts, and seeing all the cattle, and particularly those affected with contagious diseases, are in a position to supply practical facts and such important information to the agricultural department of the Privy Council as to enable it to issue those Orders in Council which were so ridiculed as useless by butchers, and some farmers and dealers, because they were restricted in the movement of their cattle, which inconvenienced them; we now see the beneficial result of these orders, as at the present time the diseases of cattle have been reduced lower than for the last thirty years. The Orders in Council for a long time were very loosely carried out, and that rendered them worse than useless. I will quote one case of many. Contagious Pleuro-pneumonia declared itself at a farmer's. I visited, and found twenty young bullocks; three were affected with this malady. I recommended that the whole of them should be slaughtered; they were all sold to a butcher for that purpose. The superintendent of police had the entire control of them, to see them slaughtered; about ten

days afterwards I visited two other farms, eight miles apart, where the disease had developed itself. I at once recognised these bullocks again : ten had been sold to each of these farmers by the butcher, which I ascertained on questioning the foreman to the butcher. I will make no further comment upon it. The agriculturists are rapidly improving themselves in education and general intelligence : they have their clubs, and engage scientific men to lecture and to instruct them on scientific subjects. So much has this been the case, that although our profession has made rapid strides in the last twenty years, the farmer will outpace us if we are idle. From this the Council saw the necessity for a more rigid matriculatory examination of the candidate for admission to the veterinary colleges, and this step has shut out some who are educationally unfit to enter our ranks. There is, undoubtedly, a great improvement in the quality of the young men who are now entering the profession, the matriculatory examination being conducted by an independent body like the College of Preceptors is a proof that each pupil is proficient in his education ; there has been considerable discussion upon the examiners rejecting so many students ; both the professors and examiners have been condemned. The examiners have a very difficult duty to perform, both to the student and the public. I am sure they are animated by a desire to conscientiously conduct the examination in a spirit of fairness and justice, and are entitled to all our praise and confidence. I think it rests with the student himself, as there are many who pass their examination who are a great credit to the professors. Ninety-nine out of every hundred who are rejected are so because they have not worked ; and if they applied themselves assiduously to their studies they would rarely be rejected. If the examiners do not consider them proficient, it would be unjust to the public and a disgrace to the profession to grant them their diplomas. What is most damaging and most calculated to ruin the young man fresh from the country is the first session, in his not having a sufficient number of lectures, and his whole time occupied ; this induces him to seek some of the pleasures to be found in London, and he thus contracts habits of indolence and enjoyment. It is harder to unlearn than it is to learn. There has been for several months a rather hot and violent discussion on the ninth clause of the Supplemental Charter, framed for the purpose of excluding all those members who have not the Fellowship degree from sitting on the Council or Examining Board. The Fellows have shown a little bitterness, as they allege they are being robbed of what they were promised and contracted for, but there need not be any antagonism, as both Fellows and members should work as one man, with one common object, and that to advance the interests, promote the welfare, and raise the status of the profession ; they must co-operate in a friendly manner, and get the grievance altered. No doubt when the then existing Council obtained the Charter, they were animated by a sincere desire to improve the quality of the profession, and it was disappointing to find so few studied to obtain the Fellowship degree. There are a great number in practice whose whole time is occupied, who could not spare time to study, nor would they care now to submit themselves to an examination ; and there are many who do not aspire to the honour and dignity of either examiner or Councilman. And although the Council did take the money and enter into a contract with those who obtained the Fellowship degree, I do not believe the Fellows themselves would like to take the responsibility of conducting the whole business of the profession, to the exclusion of all the sound, thinking men of experience whose whole life has been spent in studying the best interests of the profession, who know the practical working of it in all its details and all its wants, who are entitled to our best thanks for the miles they have travelled to attend Council meetings, and the time they have devoted to transacting our business. Very few knew of the existence of this

9th clause, till some one discovered it and brought it before the profession, which roused it from its slumber just as it was coming into operation. It will have a good effect, as most probably after this agitation members will apply themselves to study to obtain this degree and enjoy its privileges, but in the present temper of the profession upon this question, it is almost its unanimous opinion that by forcing this clause against its will and wish it will have an injurious effect. Then we must ask the Council, who represent the feeling of the profession, and in whom we have every confidence, if not to alter this objectionable clause, to suspend its operation until the profession is ripe to accept it. It would be premature to press it forward just now. I think that will satisfy both members and Fellows. I think that all veterinary societies similar to ours should form a committee to which to refer all cases of dispute, as frequently legal cases are tried before different tribunals in courts of law such as magistrates, judges, corporations, when it has been rendered very difficult for them to decide on which side the truth was, or which the correct opinion to guide them. When veterinary surgeons and medical men give such conflicting evidence, and often one-sided, leaning very much to their clients, that has been so clear and palpable that very little importance has been attached to it. This has happened more in giving evidence both for and against the Society for the Prevention of Cruelty to Animals. The veterinary profession generally have complained of the action taken by the Society, and written a great deal about it. I claim for the veterinary surgeon an innate love of all animals, from the fact of his choosing the profession as a vocation, and his constant endeavour to protect them from any unnecessary pain or wanton cruelty, and to ameliorate their sufferings; and being almost brought up, practically, in a manger, he is acquainted with all the different tempers, idiosyncrasies, manners, vices, and weaknesses of horses, and they are as numerous and various as in the human race. The horse is more intelligent than some of the ignorant, brutal men who drive him. The veterinary surgeon is constantly mixing with different men who have the management of horses and cattle, and witnessing many acts of cruelty; and having an opportunity, when occasion requires, of reasoning and instructing these men perpetrating the cruelty. It is intensely painful to witness some impatient ignoramus knocking a timid horse about the head with the butt end of the whip, and the blacksmith in the forge beating a horse with a hammer, because the animal does not understand what he wishes him to do, and the horse flying all over the place from nervousness and fright; ultimately this animal becomes vicious and kicks, as the only means of protecting himself is his heels and teeth, whereas with a little kind treatment he would gain confidence and become as docile as a lamb, and do anything you ask him to do. Therefore we as veterinary surgeons are desirous of assisting the "Royal Society for the Prevention of Cruelty to Animals" in suppressing cruelty to all animals, or any local society, either in or out of a court of law. We refrain from giving evidence in courts just for the fee, as there are too many cases taken before the magistrates that ought not to be. The object of the Society should be to protect the animal from cruelty by their acts and advice, and when that is attained, that is all that is required. The Society exercises a deterrent effect on the public, for fear of being summoned, and publicity given to acts of cruelty, a disgrace most men feel. The Society should not take trivial, unreasonable, and trump up any case just to keep its name before the public, and record as many successful prosecutions as they can, just for their annual report, as in each report we see very little diminution in the number of the same description of cruel acts: the same number of worrying cats, sore shoulders, etc., etc., every year. One would suppose, with their vigilance and energy, the number would be lessened; the only conclusion we can come to is, there must be cases trumped up. The

fact is, there are officers in nearly every town, and they have to report themselves every night to Mr. Colam where they have been and what they are doing, in order that he should know they are doing something. Any trifling case of Mange, Grease, lameness, etc., is fixed, seized upon, and summoned, and it is generally a man in a needy position whom they attack ; and then to hear the exaggerated statements of the inspector on some trifling wound has astounded me, so that I fancied it must be another horse they were describing. Their excessive zeal and anxiety to win a case amounts sometimes to vindictiveness, which frequently brings the Society into so much disrepute, and the public are disgusted. If there should be any opposition, Mr. Colam will spare no pains, trouble, or expense in establishing a precedent, and he will send a veterinary surgeon of eminence to oppose some provincial veterinarian whose mind is fully made up, and he is prepared to give evidence in favour of the Society, and if it were not so it would be useless sending him down. The Society is rich, and has vast influence, and can command the best talent. If a case of suspected cruelty is stopped on the road by an inspector, the driver and owner are cautioned, and they cease to work the horse until fit, I think the object for which the Society was formed is attained and ought to satisfy the officers, and in cases of doubt the veterinary surgeon's opinion is not sought for unless his opposition is apprehended. For my own part, I always support the Society, or never oppose it, in real cases of cruelty, and in cases of persecution of some poor man, I am just as determined in protecting him. Magistrates always favour the Society, particularly those who know very little of horses. A few months since, two teams of horses were stopped working just in a busy time of the year, because of sore shoulders ; it was a thin skin grown over old wounds, and when at work there was redness seen through the thinness of the skin. The horses were quite fit to work. The magistrates were two colonels and a clergyman. I advised the farmer, who was not a client of mine, to take the horses for the Bench to examine, and after putting their glasses on and inspecting the shoulders some time, one said, Here is a small wound ; that is cruelty ; and fined the owner £5. Such cases bring the Society into ridicule, and cause disgust in all practical, right-thinking men. The Society has a noble duty to perform, and it is a pity they are allowed to abuse its objects. The subject of Spavin is perhaps not so interesting to the public as such subjects as milk, affecting the health of the human subject. In all towns where our meetings are held, medical men should be invited to attend and discuss such matters with us, as we can afford great insight into the diseases of the human race. Continental veterinary surgeons have proved beyond all doubt that Consumption is produced in children from their being fed on milk from cows affected with Tuberculosis. There are many instances—I know of one in these towns—where a milkman has had Scarlet Fever in his family ; the germs of the disease were absorbed by the milk, and thus the malady was conveyed to most of those who partook of the milk. Many other contagious diseases are communicated in the same manner. Castrating female pigs is a simple operation ; but would it not throw some light, and materially assist the medical man in operating on women suffering from incipient or early stages of Cancer of the womb ?

I will not weary you longer with these disjointed, commonplace remarks ; but these meetings have given me infinite pleasure in making so many professional friends, cordially grasping their hands with feelings of sincere friendship, which have superseded those feelings of distrust and jealousy that may have once existed. We have greatly benefited by exchanging ideas on professional matters ; we are indebted for many instructive papers read by many gentlemen ; that by Professor Pritchard on Curb, Dr. Fleming on Actinomykosis ; Mr. Edgar on Swine Fever ; and Professor Axe in his

exhaustive scientific and complete lecture at the Central Society on Azoturia. We cannot over-estimate the knowledge gained by the lectures given by these gentlemen, who are superior to most of us in intellect and in intelligence, and who are willing to apply themselves to scientific research for the benefit of the members of our profession, and elucidating some of those new diseases that occasionally crop up, thus enabling us to treat them with confidence and explain their nature with clearness to the public, whose respect and confidence we wish to obtain, and to which the nature of our profession, when properly pursued, gives us so legitimate a claim.

(To be continued.)

LINCOLNSHIRE VETERINARY MEDICAL SOCIETY.

A MEETING of the above Society was held at the King's Head Hotel, Louth, on June 11th, 1885. The President, R. T. Hardy, Esq. (Sleaford), in the chair.

The TREASURER (Mr. C. Spencer) presented his annual report, which showed a balance in hand of £21 11s. 2d.

A discussion arose as to the purchase of instruments.

Mr. MACKINDER said this question had been put off from the last meeting because they did not know how they stood financially. He thought lithotomy and tooth instruments were very necessary, and should be kept by the President for the time being.

After a short discussion it was decided that a committee be appointed, consisting of the President, Secretary, and Mr. Mackinder, to be empowered to spend a sum not exceeding £12 in the purchase of instruments.

It having been decided that the next meeting of the Society should be held at Spalding, on the 2nd Thursday in October, the PRESIDENT delivered his inaugural address as follows:—

Gentlemen,—It is a pleasure this morning to thank you for the great honour you have conferred upon me by electing me your President for the ensuing year. I assure you that no effort on my part shall be wanting in furthering the interests of this influential association, and I hope that when my term of office shall expire, I may retire from my post with a consoling reflection that I have done everything possible to accomplish and promote the interests of the association. This association is commencing its third year; we have a large number of subscribing members, and I invite you too assist me in securing new members to keep the Society in the position it is likely to occupy. I may add that all veterinary medical associations are formed to promote a good and friendly feeling amongst our professional brethren, and I ask you to let us have the meetings well attended, and plenty of topics for discussion, and let those discussions be carried on in a gentlemanly spirit and free from jealousy, not forgetting we are all working together for the good of our profession. I will not detain you any longer, gentlemen, as time is getting short and we are to have a very elaborate essay from Captain Russell.

An interesting paper on "Some of the Diseases and Accidents connected with Parturition" was read by the Secretary on behalf of Captain Russell, of which the following is an abstract:—It was a surprising fact that the effort of parturition should be so frequently attended with serious results; merely an effort of nature, not the result of disease. But in the majority of cases no doubt those difficulties could be traced or were due to alterations in structure brought about by the necessarily artificial existence of the animal in a state of confinement, or at least unnatural existence. The first subject he desired to notice, was the existence of tumours within the structure of the uterus or in the vicinity of the vagina. They varied in shape and position, and a careful examination was important, with a view to determine the characteristics of the tumour. Fibroid and cancerous tumours were generally situate within

the uterus. Papillomatous tumours were most frequently found in the vagina. Manual examination could alone determine what was to be done in any case. Rigidity or spasm of the neck of the uterus was not unfrequently met with in the cow or ewe, which was not due to any disease, but rather to an irregular action of the muscular fibres. In all ordinary cases the fingers of the operator, with time and patience, would overcome all difficulties. Induration of the cervix was in reality entirely due to a diseased condition of the parts, and was the consequence of injury to the parts during delivery. The latter operation was most safely to be accomplished by the use of an instrument invented by Professor Walley. Carelessness in the operation was the cause of nine out of ten cows or mares being barren. Another accident arising from the act of parturition was rupture of the walls of the uterus, which might be induced from a diseased condition of the parts, or by the efforts of the foetus. Many cases could be traced to the carelessness of the owner of the animal in not seeking professional aid soon enough. Rupture of the vagina occurred in different aspects. Accidental or rough treatment, prolonged labour, causing the parts to become dry, were frequent causes. When the rupture was superiorly placed a recovery might be effected, but where it was laterally placed, such rarely was the case. For inversion of the uterus, a truss was about the best thing. Inversion of the bladder—more common in the mare than in the cow—if taken in time could be easily replaced. Retention of the placental membranes was of common occurrence.

Whole volumes had been offered the profession upon Parturient Apoplexy, and yet, apparently, they were in ignorance of the cause of the terribly rapid and speedily fatal complaint. The pages of the veterinary journals teemed with theories as to the cause, and proper treatment to be pursued, but one might have a case which would explode all theories, and leave one hopelessly in the dark as to the cause. In his opinion the cause was to be found in the artificial life the cow—the disease rarely affected mares—was exposed to from birth. In nearly every case the animal had been allowed to gorge a quantity of indigestible food, and kept from exercise at least a fortnight before the event. How many cases of cows left to get through their trouble in the field! Parturient Fever was apparently unknown in some parts of the kingdom, and was an every-day occurrence in others. The plan he recommended to prevent an attack was to give the cow plenty of daily exercise at least a fortnight before the event; not too much food of any kind, and if very fresh, a good purge about ten days before she is expected to calve. So soon as she has calved give her Mag. Sulp., Zingib., etc., according to size, weight, etc., allow no hay for three days, and keep her perfectly quiet and free from excitement. His general treatment in cases of Parturient Apoplexy had always been fairly successful.

The SECRETARY concluded by thanking those present for their patient hearing.

The PRESIDENT: I cannot invite you, gentlemen, to ask questions upon this paper, as Captain Russell is not present. I shall be glad to hear any remarks that may be made.

Mr. FIELD: Can you explain, Mr. President, how it is some districts are so much more liable to parturition diseases than others?

The PRESIDENT: As far as my practical knowledge goes, the better they are cared for the more liable they are to such diseases, and the majority of cases are in better bred animals. If I go into a yard where there are a lot of animals badly cared for, there we have very few cases.

Mr. SMITH: I find many cases where special districts are subject to these diseases.

The PRESIDENT: Do you find it in Alderneys?

Mr. FIELD: I think shorthorns are more subject to it.

The PRESIDENT : In some cases if kept in a good pasture they go down.

Mr. FIELD : Keep them on oat-straw. Give them a few lbs. of cake.

Mr. SPENCER : Do you find Alderneys have it worse than shorthorns?

The PRESIDENT : Yes ; more, in my experience.

The SECRETARY : The better the animal, the more subject to this disease. It is accelerated also by artificial selection, breeding in and in.

The PRESIDENT said he had attended a number of cases of Parturient Apoplexy, and most of them got better. He treated them very much the same as Captain Russell. He gave a strong purgative, stimulated the spine by douches of cold water to the head. He was a very great advocate for giving treacle and sulphate of magnesia and aloes. If it was a very bad case, he gave whisky, and followed it up with doses of carbonate of ammonia.

The SECRETARY : Turpentine is a very good thing.

The PRESIDENT recollected a cow taking a quart of whisky.

Mr. FIELD said he frequently gave a bottle of whisky, and followed it up with half-ounce doses of Carb. Am.

The PRESIDENT : There is one result I should like Captain Russell to have mentioned—protrusion of the rectum in mares.

Mr. MACKINDER said : Nine times out of ten, if it had been out a little while the mare would die. You may put it back but the mare will die.

The SECRETARY said he had a case in his practice where the foal was presented with its legs crosswise in the passage, and the vagina was lacerated very much. It went right through the mucous coat and formed a cul-de-sac. He gave the mare iron and quinine, and a solution for local application of corrosive sublimate, 1 in 800. He found the greatest good from that.

Mr. MACKINDER said he should not like to use the corrosive sublimate.

The SECRETARY : It is an excellent antiseptic from 800 to 1000. I have used it for a long time now.

Mr. JAS. SMITH said he had a great opinion of carbolic acid. Many of these cases had paralysis of the spine.

Mr. SMITH said he had seen that in many cases and where the thigh was completely wasted away. In the case of a mare which had partial paralysis the symptoms were symmetric, not more on one side than the other.

Mr. MACKINDER : You never get a case of Parturient Apoplexy when there is a difficult case of parturition.

Mr. SPENCER said he should like to ask if they bled these cows when plethoric.

The PRESIDENT : If ever you get them before they are down. We have had recourse to bleeding in those cases, and it has relieved them very much.

Mr. JAS. SMITH : We had very good results from the cow at Burton.

The SECRETARY remembered a bad case in which a cow recovered after being bled freely. He asked if any theory could be offered as to the partial paralysis in the mare to which he had referred.

Mr. MACKINDER recorded the use of nux vomica and iodide of potass in dram doses, with three drams a day of nux vomica.

Mr. SMITH said he had been very successful with a brisk purgative, followed up by nux vomica and treacle.

The PRESIDENT thought treacle a capital diaphoretic. He asked if any one had ever seen a heifer down with Parturient Apoplexy with the first calf.

Mr. MACKINDER : I have not ; but I have seen bullocks with every symptom of Parturient Apoplexy, when of course there could be no parturition. They had to slaughter one of those bullocks, all of which had been living upon grass, a full pasture. They went through all the stages just the same as a cow. There was considerable Tympanitis, and he attributed it to Acute Indigestion. He had pleasure in proposing a vote of thanks to Captain Russell for his valuable paper.

Mr. SMITH seconded ; and the resolution was unanimously adopted.

The SECRETARY having read a letter from the Royal College of Veterinary Surgeons,

Mr. RUNCIMAN introduced his proposition as to the election of the Council of the Royal College of Veterinary Surgeons. He said that since the last meeting, when he gave notice of this motion, the subject had been well ventilated. He had not one word to say against either the Fellowship degree or the men who had taken it up. He himself was jealous of no one man, but he was jealous of a band of Fellows arrogating to themselves the whole business of the profession. He had no objection to a man tacking as many letters of the alphabet as he liked to his name, but it did not follow that they should all take it up. It had been taken up by some of the members of the profession, but as in all well-regulated assemblies, it was absurd that the small minority should rule the majority, and ask the members to give a vote for the Fellows, men whom he thought were breaking trust with them. It was said that this part of the charter relating to the election of Fellows only to the Council ought to have been appealed against at the time, but it was his opinion that the Council were breaking trust with them. When they passed the College, and obtained the diploma, they, as simple members, were as eligible as any one else for the Council. Let every man stand on his own merits. He could not see why a few members should arrogate to themselves the whole business of the profession. He had never canvassed any one to second his resolution, and if they thought it right that Fellows should do as was suggested, perhaps no one would second it, but he for one did not say so.

Mr. GRESSWELL begged to second the proposition, and quite agreed that the minority should not rule in a case like this. When they received their diploma they were constituted members, and signed the rules and regulations of the College, and he did not see they should be put out of the representation of the Council and Board of Examiners. He found, from the VETERINARY JOURNAL of October 4th, 1876, that it was thought that some of the members should have objected to this clause, and if they had known about it they would have objected.

Mr. RUNCIMAN said : Supposing they wished to run a man like Mr. Hardy, for instance, was he to be stopped ?

Mr. MACKINDER, F.R.C.V.S., said he wished to speak to them rather as a member than a Fellow. In 1875, the year of the origin of the Fellowship, it was considered necessary by their Council to endeavour to raise the status of the veterinary profession. In doing so they had to look and see what the Royal College of Surgeons had done. They endeavoured to raise the status of their profession by establishing the Fellowship degree, and they made the same restrictions as the Royal College of Surgeons had, viz., that none but Fellows, after so many years, should be eligible for a seat on the Council or Board of Examiners. There was just the same disturbance with them as was now presented, but now the majority of surgeons were Fellows. He pointed out that the Fellows did not make this rule ; it was done by the members themselves. The subject was brought forward by the Council, and the minutes were confirmed by a meeting of the members afterwards. The time had now come for this privilege to be exercised, and they saw now that they wanted to do away with it. This charter had been recognised by Act of Parliament, and could not be altered without going to Parliament.

Mr. RUNCIMAN : Then we will go, and pay for it.

Mr. MACKINDER said there were several objections beside that of expense, and he was present when this question was fully discussed in London, and some surprise was expressed that it should be brought up. He concluded by saying that he should propose a direct negative.

Mr. RUNCIMAN said he would admit that the Council was not elected with that view, but they sprung this upon the members altogether. They all wished to raise their profession as high as possible, but there were plenty of men who did not care anything for the Fellowship. It was a matter of paying so much. The best book to read for their Fellowship degree was said to be their cheque-book. He meant to substantiate his words by his deeds, and he thought they were able to obtain an Act of Parliament.

The SECRETARY read a few words from Captain Russell, in which he said that he did not aspire to a seat on the Council or Examining Board, but having obtained the degree, he meant to uphold his title and rights. He thought if this were rescinded it would be a death-blow to the profession.

Mr. RUNCIMAN failed to see how it could be a death-blow to the profession.

Mr. MACKINDER said it would show the people that they were not equal to the Royal College of Surgeons.

Mr. RUNCIMAN said it would simply show that a few members wanted to rule the profession in the teeth of the majority.

The SECRETARY pointed out that any one could go in for the degree after five years in practice.

Mr. RUNCIMAN : On paying fifteen guineas. I have nothing against the degree or the men who have taken it. I may ultimately take it myself, or try to take it.

Mr. JAS. SMITH expressed his desire for the Fellowship degree to be maintained, but not that part of it which only allowed Fellows to be eligible for the Council.

The SECRETARY suggested there might be some way of compromise. Supposing the members sent so many representatives, and the Fellows so many. To take the degree away would be a retrograde step.

Mr. MACKINDER said the same predicament arose in the Royal College of Surgeons, but it had now proved as successful as they prophesied it would be.

Mr. RUNCIMAN pointed out that there were many degrees and examinations in the Royal College of Surgeons, and they had been agitating for a long time for some central authority. The veterinary profession were one solid, united profession, and the medical profession were not.

Mr. MACKINDER said he should propose the time be extended five more years.

Mr. GRESSWELL could not see but that a member had the same vested interest as a Fellow.

The SECRETARY : When a man passes the higher degree it showed his fitness, and that he was keeping up with the times.

Mr. RUNCIMAN : Why should not a member be on the same level?

Mr. SPENCER scarcely saw what privilege a Fellow who paid his fifteen guineas got for his money.

Mr. RUNCIMAN : He might be thought a bigger man locally. The great majority of the people are very gullible with the alphabet. Perhaps he may get a little more practice through it.

Mr. T. SMITH said he certainly must support Mr. Runciman's proposition, and felt that many of the members were really more eligible as members of the Council than the Fellows to represent local country practitioners. He held that members should be on the same footing as the Fellows. A private member had quite as much right to represent them on the Council as they had to send him there.

Mr. MACKINDER : The same inducement was put forward by the Royal College of Surgeons.

Mr. T. SMITH said : Supposing a member had been in practice, he could, for the sum of fifteen guineas, go in for the Fellowship degree.

Mr. SPENCER : The Foundation Fellows only paid ten guineas.

The SECRETARY : I think the Fellowship degree fee is too much.

Mr. SPENCER concurred.

After further discussion, Mr. FIELD moved "That all members of the College previous to the passing of the Supplemental Charter should still be eligible as members of the Council, but all members of the Royal College of Veterinary Surgeons (except the Fellows of the Royal Veterinary College) since that time shall be ineligible."

Mr. SMITH seconded.

Mr. RUNCIMAN : I should be quite agreeable to withdraw my proposition.—Agreed.

Mr. Field's resolution was then put as a substantive motion, and carried by six votes to five, Messrs. Mackinder and Hartley voting against. On the suggestion of Mr. GRESSWELL, this resolution was ordered to be sent to the Secretary of the Royal College of Veterinary Surgeons.

A vote of thanks to the President closed the proceedings, the members afterwards dining together.

THE MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE fifty-fifth meeting of the above Association was held at the George Hotel, Nottingham, on June 19th, the President, H. M. Stanley, Esq., Birmingham, in the chair.

The SECRETARY read a letter from Mr. H. Read, Hon Sec. to Royal Counties Veterinary Medical Association, with reference to rescinding Clause IX. of Supplementary Charter, granted by Her Majesty the Queen on the 23rd day of August, 1876. The question was considered of such importance, and the discussion likely to last so long, that on the proposition of Mr. GREAVES, seconded by Mr. PARKER, it was unanimously agreed to adjourn to the next meeting, to be then placed upon the agenda.

Mr. G. A. BANHAM read a most able and interesting paper on "Bone Spavin," which was listened to with marked attention. The time being short, and a long and interesting discussion being expected, it was decided that this should be adjourned to the next meeting. At the express wish of the meeting, Mr. Banham consented to allow the paper to be printed.

A cordial vote of thanks was awarded Mr. Banham for introducing so important and interesting a subject.

Rugby was fixed upon as the next place of meeting. An excellent repast was afterwards partaken of, and a most pleasant and enjoyable evening was spent.

E. BEDDARD, *Hon. Sec.*

BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

(Continued from p. 127.)

Mr. GREAVES then read the following paper :—

Fever in the Horse, more especially Sympathetic Fever.

Fever so frequently and seriously complicates most other diseases that its study is of the utmost importance to the practical veterinary surgeon—in fact, it may be said that its presence exists more or less, in one form or another, in every case in which there is any constitutional disturbance, from whatever cause that disturbance may arise. The proximate cause of Fever has been a subject of inquiry from the earliest times.

The horse is a subject endowed with the principle of excitability or a predisposition to excitement by means of a variety of stimuli. If these stimuli be below the mean rate of excitability it soon becomes exhausted and subsides. This stimulus, which gives rise to and often constitutes the remote cause of Fever, may be some miasm, contagion, septicæmia, or cold, producing, in the

first place, a rigor, or shivering fit ; while this is being enacted a certain subtle influence arouses the energies of the brain, causes a disturbance in the constitution; the vascular and nervous systems are both excited; if it continues, its tendency is to concentrate its force in some vital organ, always preceding and giving rise to some of the various and well-understood complaints, such as Influenza, Strangles, Pathogenic Pneumonia, Tumour, Glanders, etc. Now this accumulation or concentration of Fever, this tendency to locate itself in some vital organ, is the most formidable enemy we have to cope with, and, if possible, to subdue or prevent.

Writers on Fever in the human being (Zymotic Fevers) have given us a great variety of forms or types of Fever, such as Typhus Fever, Enteric Fever, and Relapsing Fever, frequently arising from septicæmia, insanitary conditions, impure or sewage water, often from milk impregnated with sewage water or contagium (which is a living thing). The period of incubation is usually ten to twelve days ; even the exhalations from discharges from the bowels of Fever patients will produce it. They have divided and sub-divided Fever until one gets mystified in the vast intricacies of its many bearings, and in order to avoid some very tedious and not very useful descriptions of the more protracted forms of Fever, I propose in the following remarks to simplify and make clear the pathology of Fever as much as possible. Fever in the horse is nearly always caused by his taking cold, or by inhaling impure air, or from septicæmia, which taints the blood. It is my belief that the many varieties of Fever are essentially one and the same ; the particular type is determined by the various causes, some of which, I am convinced, have, up to the present time, entirely eluded our observation. Some of them have a peculiar depressing effect upon the action of the heart, and this gives a peculiar character to the Fever, which lessens the amount of the reaction, or abridges its duration ; it must always be looked upon with suspicion, as it often advances insidiously, and may be looked upon as a state just on the eve of an attack of severe inflammation of some important internal organ. In active Fever we have one continued train of preternatural action and exhaustion until the system is completely worn out : as the Fever advances so does emaciation, and strength becomes more or less prostrate. Some constitutions have less power of resistance than others, and must more easily fall victims. Their natures seem unable to make an effort to contend against disease when it sets in.

It is my intention in the following remarks to consider my subject under two main divisions, viz., 1. Fever which may be called initiatory or idiopathic ; the other, Sympathetic Fever, which arises altogether from some definite local cause (never spontaneously in an otherwise healthy and sound constitution).

I have said that Fever can be propagated in the system from a variety of causes ; that it may exist in some constitutions for an indefinite short period unperceived ; that it is insidious and stealthy in its progress. What I mean is this, a horse may take a cold to-day, or he may imbibe a poisonous miasma to-day, or he may have been imbibing it for weeks and months ; its effects may be lurking in the system in a state of incubation for many days, unperceivable even by an experienced and observant horseman, its subtle influence is going on doing its work. In some horses the appetite may not be affected ; its general appearance may not undergo any change for several days ; then he begins to be dull and heavy, is sluggish and leaves his food. At the very first indication of ailing he may be stopped from his work and a veterinary surgeon be called in, who pronounces it a case of Fever, finds pulse sixty or seventy-two, mouth hot, hanging head, ears cold, respiration accelerated, temperature elevated, etc., etc. *The veterinary surgeon says this horse has been ill for several days ;* he is ready to disbelieve the groom, horse-keeper, or driver who contends that nothing was the matter before this morning. I

grant you that many horses may be stopped which ail but very little, and are soon well again ; but what I want to call your attention particularly to is this, that this Fever may have been in him for several days, but in such a subtle and insidious state as to be undetectable by the ordinary means. I should like to use some phrase which would convey my exact idea—make my meaning absolutely clear. Probably, ay, very probably, if the pulse had been carefully taken and the thermometer employed, the two adjuncts would in all probability have detected that an excitability or disturbance was in existence many days before, though quite unperceivable by other known means. Now this is the time, the precious time, this time is inestimable, and if overlooked or neglected it often happens his doom is sealed. All this may be quite true, nay, is quite true, and if the horse had been in hand then, and means had been resorted to to arrest its progress at this critical moment, before it had accumulated or settled in some vital organ, many a valuable life might have been saved ; if we could only become possessed of this knowledge it would become invaluable to us, but then who could expect the attendant to be taking every horse's pulse and ascertaining the temperature every morning before going out to work, when, to all outward appearance, the horse at the time was in perfect health ?

I ask this Association to assist me in devising some means of ascertaining with some degree of certainty the earlier stage of existence of this hidden Fever—some improvement on the means we have now at our command, like unto a lever to lift the veil which keeps us from the light. Of course, a man of large practical experience is not alarmed when called to a simple case, but it behoves us to be always on our guard, and always vigilant ; a common interest requires us to make an effort, and to act our part. I have found that the application of strong blister ointment, or mustard, frequently applied to the sides, where the pleura or the parenchyma of the lungs has become involved, often does much more harm than good ; let us inaugurate some improvement in our diagnosis and in our treatment which will benefit our profession and be an advantage to posterity—remember, our day of opportunity will soon be past. The thermometer can discover a deviation from health twenty-four or forty-eight hours before the pulse will indicate it. Another thing must not be overlooked, viz., that one horse is much more susceptible to the effect of disease than another horse, that is, one horse has finer feelings, a more delicate and sensitive nature than another ; for instance, we will suppose that two horses are subjected to the same cause, exactly at the same time, and precisely to the same extent, one of them shall show illness twenty-four or forty-eight hours before the other, and the one shall give up almost at once, whilst the other may throw the effect off completely, or he may keep to his eating and working days after the other has given up ; at last he yields to the effects, and it proves a more difficult case, is in greater danger, and more likely to do badly, because the Fever has had time to accumulate, and has concentrated itself to a greater extent than it has in the other case. I maintain that these zymotic diseases may be entirely done away with by minute sanitary precautions (here Mr. Greaves read an extract from one of his papers on Enzootic Disease, page 333 of VETERINARY JOURNAL for 1883). Another thing I have observed, and I wish to hear the opinion of this meeting upon it, viz., whenever we have a Fever prevailing in a district—say, if you will, Influenza Fever—we have cases in all directions which we visit daily, we shall find that some days almost every patient in every quarter appears a little better, and on other days we find that almost every patient in every quarter appears a little worse. Now, how is this to be accounted for ? Is it from some different electrical condition in the atmosphere at one time than at another time ? Then again, I want to point out another thing in these Fevers and their results. The great tendency in the horse is for these Fevers to locate or accumulate in the lungs

or pleura, just the same as vesicles in the mouth and feet in cattle is a consequence of a certain Fever existing in the cow at the time. Now, previous to fifteen or twenty years ago, the result of nine out of ten of these Fever cases that terminated fatally was Hydrothorax; since then, nine out of every ten of these Fever cases that end fatally have resulted in stinking breath, breaking up of lung tissue, vomicae, and no Hydrothorax. We have the same class of horse, the same work, the same hours, the same water, same stables, etc. The only thing I can think can account for this change of type of disease is an alteration that has been made in their diet. English beans have been discontinued, and Indian corn has been substituted.

Now, in these enlightened times a more comprehensive spirit pervades medical studies, the animal frame is allowed to exhibit pretensions superior to the inanimate, and not only be governed by powers of its own, but by powers which are continually and systematically, from a given point, operating for the preservation of health, where it exists, and to a restoration of health where it has been lost or injured. The complexion of some constitutions is such that their natures can make a noble stand against disease, it makes a protracted and violent struggle for life, and often lives it out. It is in the perfecting of an idea, in the working out of a thought, in the persistent application of our knowledge, that a man's sterling efficiency is made manifest; years of patient and unremitting toil to bring about a thoroughly established reputation and ensure success in these kind of cases; when Fever has existed many days, pulse keeps up to 72 or upwards, and thermometer indicates 102 or 103°, the diminished energy extends its influence over the whole system, and occasions a universal debility. This debility is exerted chiefly over the extreme vessels or capillaries.

Treatment of Fever.

My method of treatment is to place my patient in a cool, airy, loose box: let him be well-clothed, get his ears warm, and see that they are kept warm, fed on mashes, leave a bucket with bran-tea before him, give him also cold water with nitre in it, carbonate ammonia balls, belladonna and camphor balls, aconite, fever drinks, whisky, etc. If soreness in the lungs or in the pleura is detected or apprehended, I stimulate the sides and employ hot cloths (that is, a large horse-cloth wrung out of half-scalding water) over the chest; if his breathing is accelerated, I may insert a rowel in the breast; if his bowels are confined, he must be raked and glystered frequently—I often burn nitrate of potass powder on hot cinders in the box daily. This, in many cases, acts as a direct sedative to the respiratory organs. If our patient has a tolerably strong pulse, blood-letting is occasionally resorted to with marked benefit. This in many cases acts as a direct sedative to the respiratory organs. But if Pathogenic Pneumonia or Pleurisy has set in and has existed some days (say fifteen or twenty days), you may adopt whatever method of treatment you like, but in the majority of these cases the patient must die. All do not die: it is pleasant to turn our eyes for a moment from gloomy to brighter scenes—these delights are attainable in some cases of recovery. I have been an eye-witness of various systems adopted by different veterinarians. I have found that those who have recourse to the most heroic treatment, that is, setoning the sides and breast, blistering severely breast and sides with blister ointment, or mustard frequently applied, have the least percentage of recoveries.

Post-mortem Examinations.

In making *post-mortem* examination of those cases that die, which, in the majority of cases, will take place from fifteen to thirty days after they are stopped from their work, though *post-mortem* appearances convince you in many cases that disease must have existed a much longer period, we often

find appearances malignant and extensive beyond what we expected to find. Perhaps the horse has died before twenty days have elapsed since he was stopped, and we find the chest full of water, lungs adhering to the ribs throughout the whole extent of both lobes of the lungs, and large quantities of coagulable lymph, the whole pleura costalis and pulmonalis completely covered with flocculi ; it is natural to conclude that the case has been going on for a longer period than stated. Possibly the remains of some previous attack of Acute Pleurisy, but unless the adhesions are organised, that is, the blood-vessels have shot into and from one pleura to the other, so much so that they cannot be separated or torn asunder without tearing blood-vessels and causing bleeding, we are not justified in concluding that it has been of long duration.

Sympathetic Fever.

This is a Fever, or abnormal disturbance in the system produced solely by intense pain which exists in some circumscribed part ; for instance, if a horse treads upon a nail which penetrates the coffin bone, or treads with violence upon the coronary substance, and he suffers intense pain, it will be seen that the very first time he voids his fæces after the accident, that a large quantity of coagulated secretion passes along with the fæces, his pulse will get up to 80, his breathing becomes greatly accelerated, and his temperature gets to 102 or 103°, although up to the moment of the accident the horse was in perfect health, and all the secretions were in a normal state, such is the power of sympathy, through the medium of the sympathetic nerve. Then, again, look upon a horse suffering from a sudden attack of spasm of the bowels, or Enteritis : scraping with his fore feet, kicking with his hind feet, rolling and tumbling about, becoming easy all at once, and in a few moments he seems as if his feet were nailed to the ground, metastasis having taken Fever from the bowels to the sensitive laminæ of the feet, such is the power of sympathy existing between two structures analogous in their natures. The tendency in this Fever is not like the other, it rarely locates itself in the lungs or pleura. This is an interesting problem which has exercised the deepest attention of many eminent men, and which is not yet clearly explained.

The general phenomena of Acute Sympathetic Fever in a healthy body is, in the first place, more or less contraction of the small arteries, followed by dilatation ; the small veins also become dilated, the flow of blood, which is at first accelerated, soon becomes retarded, and stagnation occurs at points commencing in the capillaries, and extending to the veins and arteries, at the point of stagnation there is an aggregation of the red and white corpuscles of the blood which appears to block up the vessels, the red corpuscles chiefly occupying the arteries, and the white ones the veins ; around the centre of stagnation there is a retarded flow of blood, in which inflammatory area the corpuscles are seen to move languidly, and beyond this there is a rapid rush of an increased quantity of blood, often called throbbing of the artery. This disturbance affects not only the small arteries in the immediate vicinity of the inflamed part, but those also at a distance ; this is shown by the increase of strength and force of the pulsation in them, as may be readily observed, the rapidity of the current of blood passing from as well as to the inflamed part is increased, sooner or later the blood current becomes retarded, usually in the veins where the white corpuscles move sluggishly, as if adhering to the sides of the vessels, while the red corpuscles and liquor sanguinis flow more rapidly in the central current. As the case becomes more advanced the white corpuscles crowd more and more into the veins, and the red corpuscles crowd in the capillaries, adhering closer to one another, and to the sides of the vessels ; in time it is found that a moiety of these white and red corpuscles pass right through the walls of the veins and capillaries without rupturing them, but consequent on their weakness, called

exudation, and form tumefaction, this is what takes place in every case where intense inflammation is in existence in any local part, whether it be in a vital organ or a non-vital part, but during the whole of this time there is also a part, and not a small part, played by the nerves supplying these vessels with motion and sensation; let us follow science, and find all her ways are ways of pleasantness, and all her flowery paths are peace.

The PRESIDENT, in inviting a discussion, said he was sorry to see so few present, and thought it paid Mr. Greaves a very poor compliment for the trouble he had taken to prepare and read them a paper, and remarked that veterinary surgeons could hardly be so fully occupied as not to spare half a day three times a year for their own special good, and thought those members who did not make some effort to attend were enemies to themselves, by too exclusively fostering their own opinions or systems which might be false or at least open to considerable modification, and, it might be, improvement. These meetings were a power for good in expanding and improving a man's knowledge, and however proficient a man might be in his own estimation, he was sure to gather something useful from associating together and interchanging opinions with other members.

Messrs. MULVEY, DAWSON, THOMPSON, BELL, sen., and the PRESIDENT joined in the discussion, which mainly related to drainage and treatment. Surface drainage was considered far preferable to underground drainage, and the President thought that venesection was too little employed in dealing with the febrile state.

Mr. THOMPSON exhibited three specimens of twisted bowels, and described the symptoms exhibited in each case. In the conversation which followed, it appeared that this lesion had been very common during the months of March and April.

Mr. BELL, sen., exhibited a bovine monstrosity, which was the second successive abnormal calf produced by the same cow. Mr. Bell attributed the abnormality to in-breeding, the cow having been served by her own son.

The PRESIDENT promised a paper for next meeting.

J. DONALD, *Secretary.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of this association was held at the Blackfriars Hotel, Manchester, March 11th, 1885, Samuel Locke, Esq., President, in the chair.

Mr. T. HOPKIN gave details of a very interesting case of disease of the small intestine (horse), and exhibited specimen.

Mr. WM. DACRE related a case of Alveolar Sarcoma affecting the face of a horse, and exhibited the skull. The subject was a young van-gelding, apparently in good health, and fat. The disease commenced as a small tumour just below the left eye, above the two last upper molars; growth was very rapid, and accompanied by absorption of the surrounding bony structure. The horse was destroyed in about two months from the commencement of the disease, and the specimen showed a deep circular cavity, with a diameter of about three inches.

Messrs. PETER TAYLOR, W. A. TAYLOR, THOMAS GREAVES, and W. WHITTLE spoke on the subject.

The adjourned discussion on Professor Brown's pamphlet was reopened, and continued until the close of the meeting.

The next quarterly meeting was held on June 10th, the President, S. Locke, Esq., in the chair, and there were present twenty-three members and friends.

The SECRETARY read a short report of the work done by the Election Committee, and congratulated the members on the position Mr. Peter Taylor, their candidate, held on the list of the elected.

Mr. TAYLOR returned thanks. He then referred to the death of Mr. John Greaves, of Flixton, who was one of the originators of the association, and concluded by moving that a letter of condolence be forwarded to his widow.

Seconded by Mr. JOHN LAWSON, and carried unanimously.

Mr. Woods (Wigan) was elected Life Governor in the National Veterinary Defence and Benevolent Society, in place of T. Taylor, deceased.

The following were elected members :—R. Herbert, Rochdale ; J. Platt, Southport ; J. Ashton, Bolton ; T. and A. Leather, Liverpool ; J. Faulkner, Rochdale.

The SECRETARY read a letter received from the Royal Counties Veterinary Medical Association, advocating that Clause IX. of Supplemental Charter of 1876 should be rescinded.

Mr. THOS. GREAVES opened the discussion ; he reviewed the position of the profession ten years ago, and the reasons for instituting the Fellowship degree, and maintained that what the Council had done had been with the sole desire of advancing the profession.

Messrs. P. TAYLOR, A. LAWSON, J. S. HURNDALL, W. A. TAYLOR, WM. DACRE, S. HOPKIN, JOHN LAWSON, T. BRIGGS, W. WOODS, and J. B. WOLSTENHOLME spoke to the question.

Mr. A. LAWSON moved, and Mr. WOODS seconded, "That the Secretary be instructed to write to the Council, R.C.V.S., intimating that this association would respectfully suggest that in the case of M.R.C.V.S.'s who have held the diploma for ten years and upwards the examination for the Fellowship degree be chiefly of a practical character."

The resolution was passed by 8 votes against 7.

Mr. HOPKIN proposed the following amendment :—"That it is undesirable that Clause 9 of Supplemental Charter (1876) be rescinded or amended, until it has been in operation a sufficient time to prove its value or otherwise."

This was seconded by Mr. T. BRIGGS. When put to the vote, 5 were for and 10 against it.

Mr. W. A. TAYLOR suggested localisation of the Fellowship examination in centres, in a similar way to that of the Oxford and Cambridge Local Examinations ; the abolition of the educational test in the case of a candidate having obtained his diploma prior to 1876 ; and that there be a reduction in the examination fee.

The discussion on Professor Brown's pamphlet was again adjourned.

A resolution was adopted expressing regret that time had again prevented the reading of a paper on Septicæmia, by Mr. E. Faulkner.

Mr. T. HOPKIN gave notice that at the next meeting he would bring forward the question of letters of condolence, and move a resolution thereon.

J. B. WOLSTENHOLME, *Hon. Sec.*

GLASGOW VETERINARY COLLEGE.

THE summer session of this institution terminated on 10th July, and on the 21st, 25th, and 28th the oral examinations of the Royal College of Veterinary Surgeons were conducted within the museum of the College. The Board of Examiners included Mr. George Fleming, LL.D., F.R.C.V.S. ; Mr. J. Roalfe Cox, F.R.C.V.S. ; Professor Duguid, F.R.C.V.S. ; Professor Pritchard, M.R.C.V.S. ; Mr. J. Vaughan, F.R.C.V.S. ; Mr. Finlay Dun, F.R.C.V.S., London ; Mr. W. A. Taylor, F.R.C.V.S., Manchester ; Mr.

George A. Banham, F.R.C.V.S., Cambridge; Dr. Andrew Wilson, Edinburgh; Mr. Archibald Robinson, M.R.C.V.S., Greenock; and Mr. Richard Rutherford, M.R.C.V.S., Edinburgh. The following gentlemen were also present as *ex officio* members:—Principal M'Call, Professors Cooke, Limont, Macqueen, and Renfrew, Glasgow Veterinary College. Fifteen gentlemen presented themselves for the diploma of the Royal College of Veterinary Surgeons, and of this number the following passed:—

Mr. Moses B. Scouler, Stirlingshire; Mr. Thomas Dobie, Birkenhead; Mr. David Weir, Ayrshire; Mr. Andrew Reid, Ayrshire; Mr. Andrew A. Leckie, Dumfries; Mr. Thomas Carnachan, Stranraer; Mr. William Ferguson, Greenock; Mr. Charles J. Doyle, Bray; Mr. Alexander C. Forbes, Glasgow.

Seven students were examined for the "B," or second examination, and five passed, viz.:—

Mr. Bruce D. Miller, Glasgow; Mr. John Brown, Lesmahagow; Mr. John Caldwell, Stranraer; Mr. Gavin Miller, Glenluce; Mr. Samuel G. Howard, Glasgow.

Twenty-six students were also examined for the "A," or first examination, and of this number twenty passed very creditably. Medals granted by the Highland and Agricultural Society of Scotland (Principal M'Call), and certificates of merit by the College, were awarded in the different branches of study as follows:—

Botany.—Silver Medal (H. and A. S. of S.)—Mr. John Kernohan. First-class Certificates—Messrs. Spense and M'Kerlie. Second-class Certificates—Messrs. Begg, Williams, M'Kie, and Smith.

Chemistry.—Silver Medal (H. and A. S. of S.)—Mr. William Grinton. First-class Certificates—Messrs. Williams, Kernohan, and M'Kerlie. Second-class Certificates—Messrs. M'Nairn and Begg.

Materia Medica.—Silver Medal (H. and A. S. of S.)—Mr. William Grinton. First-class Certificates—Messrs. Smith, Begg, and Kernohan. Second-class Certificates—Messrs. M'Lean, Williams, M'Kie, and Stafford.

Junior Anatomy.—First-class Certificates—Messrs. M'Nairn and Williams. Second-class Certificates—Messrs. Kernohan, M'Kerlie, and Begg.

At the close of the examinations the Secretary to the Board of Examiners intimated that Messrs. Grinton, M'Kie, Smith, and Williams had passed with "Great Credit," and that Mr. John Kernohan had passed with "Very Great Credit."

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT meetings of the Scottish Section of the Board of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh and Glasgow on and between July 20th and 31st, the following gentlemen passed their Final Examination and were admitted members of the profession:—

Dick Veterinary College.

Mr. N. J. Doyle	...	...	Wexford.
„ R. Reid	...	...	Auchtermuchty, Fifeshire.
„ J. Fitzgerald	...	...	Limerick.
„ F. A. Ball	...	...	Ormskirk.
„ A. W. Davies	...	...	Hay, South Wales.
„ R. E. Thomas	...	...	Llannwchllyn, Merionethshire.
„ A. P. Taylor	...	...	St. Helen's, Lancashire.
„ F. Brown	Newcastle-on-Tyne.

New Veterinary College.

Mr. W. Allan	...	...	Coull Aboyne, Aberdeen.
„ S. Jackson	...	...	Liverpool.
„ T. Duckworth	...	...	Tatton Hall, Cheshire.
„ F. L. Nadal	...	...	Mauritius.

Glasgow Veterinary College.

Mr. C. J. Doyle	...	...	Bray, Dublin.
„ M. B. Scouller	...	...	Middlekerse, Stirlingshire.
„ T. Dobie	...	...	Birkenhead.
„ W. Ferguson	...	...	Greenock.
„ D. Weir	...	...	Ochiltree, Ayrshire.
„ A. C. Forbes	...	...	Glasgow.
„ A. Reid	...	...	Tarbolton, Ayrshire.
„ A. A. Leckie	...	...	Dumfries.
„ T. W. Carnachan	...	...	Stranraer, Wigtonshire.

The following passed their *Second Examination* :—

Dick Veterinary College.

Mr. J. Matthews.	Mr. J. F. Roden.
„ J. King.	„ W. Lawrence.
„ S. Frost.	

New Veterinary College.

Mr. E. Collins.	Mr. W. Peffers.
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Glasgow Veterinary College.

Mr. B. D. Miller.	Mr. G. Miller.
„ J. Caldwell.	„ S. G. Howard.
„ J. Brown.	

The following passed their *First Examination* :—

Dick Veterinary College.

† Mr. J. Cowan.	Mr. J. Hughes.
„ F. Coleman.	„ W. Henderson.
„ R. Edmondson.	„ E. Morgan.
„ C. R. Sephton.	„ G. Sinclair.
„ J. Farrar.	„ J. Stewart.
„ J. George.	„ J. Logan.
„ C. Nicholson.	„ S. J. Hewitt.
„ J. Harle.	„ W. Skinner.
„ J. Pottie.	„ W. Cronyn.
„ J. Jackson.	„ J. Whyte.

New Veterinary College.

Mr. J. Matthews.	Mr. J. Rigby.
„ F. W. Greenfell.	„ E. Lawrence.
„ R. Shenton.	„ J. Gregory.
„ F. Austerberry.	„ W. Tait.
* „ F. Smith.	„ J. L. C. Jones.
* „ A. Bate.	„ R. Scott.

Mr. O. Thomas.	Mr. J. Dalling.
„ T. Wilson.	„ D. J. Jones.
„ W. Schorn.	„ E. A. Saxton.
* „ G. Craik.	„ J. F. Carson.
„ E. Learoyd.	„ O. J. Williams.
„ W. F. Shore.	„ G. C. Webb.
„ E. W. Nieldsiddall.	† „ L. G. Lloyd.
* „ E. Murray.	

Glasgow Veterinary College.

Mr. J. Spencer.	Mr. W. Welsh.
„ A. S. Macqueen.	* „ W. D. Smith.
* „ W. Grinton.	„ H. Begg.
„ H. D. Young.	„ J. McKerlie.
„ T. Miller.	* „ W. McKie.
„ A. B. Baird.	„ J. McNaim.
„ T. B. Hamilton.	„ H. Lymburn.
„ J. Campbell.	„ J. McLean.
* „ H. Williams.	„ J. Shade.
† „ J. Kernochan.	„ R. O. Stafford.

R. RUTHERFORD, M.R.C.V.S.,
Secretary, Board of Examiners.

* Marked thus passed with "Great Credit."
 † Marked thus passed with "Very Great Credit."

Obituary.

IT is with deep regret that we receive the report of the death of Mr. A. Willows, M.R.C.V.S., of Sydney, New South Wales. As our readers may have observed, in perusing the section we devote to the Army Veterinary Department, Mr. Willows accompanied the New South Wales contingent to the Soudan as veterinary surgeon to the battery of artillery, and lost his health while at Suakin; and when on his return to Australia in the ship *Arab*, he died. The following particulars are given by a correspondent who was on board:—"The general happiness was marred by the death and burial at sea of Veterinary Surgeon Willows, which occurred on the 9th of June, when the ship was a few hundred miles off the Australian coast. Mr. Willows was one more victim of Typhoid Fever, having been taken ill during the last week of the campaign. He persisted in his duties until he was forced to enter the *Ganges* hospital. The case was difficult to diagnose, and he was permitted to embark on the *Arab*, but before he arrived at Aden undoubted symptoms of Typhoid were developed. When the others were sent ashore at Colombo, Mr. Willows, whose almost normal temperature gave every indication of recovery, remained aboard. The progress of the Soudan Fever is characterised by relapses of a most dangerous character, in which the temperature, without apparent cause, rises from a normal degree to 102° and 103°, when the patient rarely recovers. Mr. Willows, after several hours of unconsciousness, died shortly after midnight on the 8th of June, and was buried at six o'clock in the morning. The chaplain read the burial service. To his successful treatment, combined with extraordinary care, is attributed the loss of so few horses." In recognition of his patriotism in volunteering for service in the Soudan, the Royal College of Veterinary Surgeons, at its last Council meeting, elected him an Honorary Associate.

Army Veterinary Department.*Gazette*, July 21st, 1885.

Veterinary Surgeon on probation, Frank W. Sharp, to be Veterinary Surgeon. Dated Dec. 31st, 1884.

Gazette, July 28th.

Inspecting Veterinary Surgeon Tom P. Gudgin has been placed on retired pay. Dated July 27th.

Gazette, August 4th.

Veterinary Surgeon (First Class) William Appleton, to be Inspecting Veterinary Surgeon, vice T. P. Gudgin retired. Dated July 27th.

Gazette, August 18th.

The following Veterinary Surgeons on probation to be Veterinary Surgeons: Edward Taylor, Alfred Joseph Haslam. Dated February 4th, 1885.

Jurisprudence.**IMPORTANT COW WARRANTY CASE.**

IN the action which has been pending for some time in the Sheriff Court, Hamilton, N.B., at the instance of William Aitken, farmer, Eastsidewood, by Carnwath, against George R. Wood, Muirhouse, Wishaw, an interlocutor has just been pronounced in the defender's favour. The pursuer concluded for repetition of the price of a cow bought by him from Mr. Wood, and which was alleged to be disconform to warranty. The proof was a lengthy one, and several eminent veterinary surgeons were adduced as witnesses. The interlocutor, which explains itself, is as follows:—

Hamilton, 6th August, 1885.—Having heard parties' procurators, and made avizandum, Finds, (1) That on 30th October last the pursuer purchased at Messrs. Marshall's auction sale at Wishaw a cow belonging to the defender at the price of £19, and warranted free from disease and correct in her vessel (udder); (2) That she was delivered on the same day, and the price paid; (3) That she was timeously rejected, but that it is not proved she was disconform to warranty at the date of sale: Assoilzies the defender from the conclusions of the action: Finds him entitled to expenses: Remits the account to the auditor to tax and report, and decerns.

(Signed) J. B. L. BIRNIE.

Note.—The cow was purchased at the Wishaw Auction Mart on Thursday, 30th October. During the previous summer she was at the grass on the defender's farm, having been let dry in July. She was at the auction mart on the Thursday previous to the 30th October, but not having been sold was again taken to the farm. Between the two Thursdays she was not put out to grass, but kept in the house. She was supposed to be in perfect health, having a smooth skin, and taking her food well, and between the two Thursdays appeared to have rather improved than otherwise. She was examined by the defender's manager on the evening before 30th October, and took her food well on the morning of that day. She was driven to the sale, a distance of a mile and a half, and nothing wrong was observed with her either then or in the auction ring. She was placed in the auction byre, which had both doors open, but was warm and comfortable. The day was a good winter day, and not damp. After being sold she was driven by the pursuer to the Wishaw Station, and he thought her somewhat stiff about the hind legs. She was taken by rail to Auchengray, the journey occupying about an hour and a half,

and was driven by the pursuer to his farm, two miles distant, and he again thought her somewhat stiff about the hind legs. From that time until Sunday she took no food, except a mouthful off the top of boiled food. About five o'clock in the morning she calved, and then gave only ropy milk—that is, milk mixed with suppurating matter. She continued to get worse, and died on the Wednesday week, which was the thirteenth day after the day of sale. Mr. Carmichael, who, although not a veterinary surgeon, has had long experience among cattle, saw her on the Sunday, Mr. Cassells on the Tuesday, Mr. Jarvie on the Thursday, and Mr. Cassells and Principal Walley on the Friday. Principal M'Call, Mr. Cassells, and Mr. Jarvie saw her body the day after she died. Mr. Cassells removed a portion of the udder and sent it to Principal Walley, who examined it. Principal M'Call took a portion from each of the four quarters of the udder, and these were preserved in spirits by Mr. Jarvie, and in February were microscopically examined by Dr. Limont. The evidence narrows itself into two parts—(1) Whether the ropy milk could have arisen between the Thursday at midday and the Sunday morning ; and (2) whether there was interstitial tissue in the udder. Interstitial tissue is organised with blood-vessels for its support. Induration is hardening. The first could not have grown between the date of sale and the date of death. The second might, but is frequently a symptom of chronic disease, and its absence tends to show there was no chronic disease. Professor Walley says ropy milk could not have been found on the Sunday morning had the cow been free from inflammation on the Thursday. Mr. Carmichael corroborates this, and Mr. Cassells says ropy milk does not appear until the fourth or fifth day. Professor M'Call says it may have been found on the Sunday morning and the cow been free from inflammation on the Thursday ; that purulent matter, which shows a more advanced inflammation, may have been so found ; that he has had cows dead from the same cause in three days from health ; and that what was found on the Sunday may have arisen from inflammation of the mucous membrane only, although it afterwards spread to the deeper parts of the udder. Mr. Jarvie says that ropy milk could have arisen easily from the Thursday to the Sunday ; Mr. M'Callum, that it is not in harmony with his experience that cattle die in three days from inflammation of the udder, but that it is possible. Both Professor Walley and Professor M'Call found acute inflammation. They also found gangrene. The first of these may arise in a few hours, and the second in, at all events, thirteen days. Neither found abscess. Professor Walley thinks he found interstitial tissue in large quantity, and induration. Professor M'Call found lymph, which may become tissue, but thinks there was no tissue nor induration. Lymph may arise, at all events, in thirteen days. Professor Walley thinks the cow died from chronic inflammation, which became active as she approached the time of calving. His reasons are the interstitial tissue, induration, and ropy milk. Professor M'Call found no trace of chronic inflammation, and thinks the acute inflammation from which she died may, and probably did, arise subsequent to the date of sale. His reasons are the sufficiency of acute inflammation, when diffused, as in this case, to cause the symptoms he saw, and the absence of interstitial tissue and induration. In this state of the evidence, it seems to me the pursuer has not proved his claim. It is impossible to hold with Mr. M'Callum that there was interstitial tissue in the quantity spoken to by Principal Walley, unobserved by Principal M'Call—the result being that what Principal Walley thought was interstitial tissue cannot be held proved to have been so ; and assuming that ropy milk arises more frequently after than on the third day, it is proved there are exceptions, and the want of symptoms of inflammation prior to the sale in this case tends to the conclusion that it was an exception.

Notes and News.

NEW YORK POLYCLINIC.—Mr. Billings, a graduate of the Berlin Veterinary School, and who has studied pathology under Virchow, has been appointed Superintendent or Director of the Laboratory of Pathological Histology and State Medicine in this institution.

THE GERMAN ARMY.—In the German Army the number of horses in the Cavalry is 62,250 ; Artillery, 16,591 ; Train, 2,457—a total of 81,598 horses. The number of veterinary officers is 619.

A NEW MEANS FOR ARRESTING BLEEDING.—At a recent meeting of the Academy of Medicine in Paris, Professor Bonafoux read a paper upon a powder which possesses great powers of stopping blood-flow, and is capable, it is said, of arresting the bleeding of large arteries, so that it will prove serviceable in important surgical operations. This powder is composed of equal parts of colophony, carbon, and gum arabic. Experiments have been tried with it on the great artery of the arm in man, and on the smaller vessels, on the carotid of the horse, and other blood vessels of the same animal, with marked success. It has always prevented consecutive bleeding. The application can be removed in the course of two or three days, when the vessels are found to be completely obliterated.

Correspondence.

A DISEASE OF SHEEP.

SIR,—Would you kindly allow me a little of your valuable space for the following inquiry, regarding a diseased condition of the eye, which came under my observation the other day?

I had occasion to be in the country, visiting a sheep-farmer, and was shown perhaps half a score of black-faced ewes, which were, some of them partially, the others totally, blind. The first animal we caught was, perhaps, the worst of the lot, and was to all appearance stone blind. I examined both eyes, and found the iris much inflamed, the pupil very much dilated ; the conjunctival membrane was not to say much injected. There appeared to be an opacity of the vitreous humour, and the humour itself appeared coagulated, and pressing out through the pupil, and bulging the cornea outwards, at least as much of it as corresponded to the size of the pupil. This staphylo-matous part was of a yellowish colour, apparently due to some inflammatory process in the interior of the eyeball. The cornea did not appear as if any external injury had been the cause. The inference I drew was that the lesion had commenced in the interior of the eyeball, and was working itself outwards through the pupil.

I asked the shepherd if he thought that animal would ever be able to see again, to which he replied in the affirmative ; he said in about three weeks the animal would again see. He could not, however, give any cause for the diseased condition. He also informed me that he had observed a similar condition in both winter and summer, and that it affected both old and young sheep. I was shown another animal that had recovered and was able to see ; but certainly the recovery did not appear complete, as there still remained a slight opacity of the humour. The disease is probably "Keratitis ;" but what I more particularly wish to know are the causes generally giving rise to it, also the treatment to adopt, especially the preventive treatment, if any.

Perhaps some of the readers of your valuable Journal, particularly in the

North, who are accustomed to large sheep practice, might be able to give a little light as to the cause, or causes, etc., of this condition.

D. H. W., *Veterinary Student.*

UNPROFESSIONAL ADVERTISING.

SIR,—I want to know, through your Journal, if a Mr. Edward Moore, of Albany, N.Y., a graduate of 1877, was Cattle Plague inspector for the British Government, as he claims to have been, in his advertisements, which I enclose you.

As the Cattle Plague has not been in England since 1866, it seems to me that the gentleman never saw a case of it in his life. If it is Pleuro-pneumonia he means, it is rather strange that the British Government should appoint an inexperienced American student in preference to its own practical, qualified men. By answering this in your next Journal you will confer a favour.

ROBERT LAIDLAW.

Albany, N.Y., *July 13th.*

PARLIAMENTARY REPRESENTATION IN COUNCIL.

SIR,—On page 112 of your last month's issue, it is stated that "Dr. Fleming said it was the general opinion of the Council of 1882 that such a scheme as that proposed by Mr. Cunningham would not work."

The scheme is our Parliamentary System. It works at every General Election; it works at every meeting of Parliament for the consideration of things great or small. It is a fair system, an economical system, an equally representative system; it is easily adapted to our annual elections and council meetings. Will Dr. Fleming, through your columns, kindly give us the reasons for this opinion of Council? Will he, as a personal favour, show me how, and in what way, the scheme would not work?

On page 113, in Mr. Banham's address to the Norfolk Association, are the following words:—"England has the largest number of practitioners, and will have, at least for a long time to come, do what we will; and as she has the largest number, she ought to be 'majority,' and the minority ought to learn to give in to her rule."

England is the "majority," Scotland is the "minority"; therefore, in Mr. Banham's opinion, Scotland should give in to England's rule, at least for a long time to come.

I thank Mr. Banham for his plain words, and before making any comment on them, will Mr. Banham kindly tell us in what, save sheer dead force of numbers, England is in the majority? There are more veterinary colleges in Scotland—more students educated there. There are as good men and as good practitioners in Scotland as in England. And I have yet to learn why the veterinary surgeons of Scotland "ought to give in" to their brethren across the border in any subject whatever. Will the Honorary Secretary of the British Veterinary Medical Association kindly give us some good and sufficient reason why Scotland ought to give in to England's rule for a long time to come?

Do twenty-eight men from England and two from Scotland make a fairly representative Council? Into whose imagination did the brilliant idea enter that "the Council should be composed equally of two Irish, four Scotch, and eighteen Englishmen"? Certainly not into mine. What though "the schools, Ireland, and Scotland put together, be in the minority"? If the schools, Ireland, and Scotland be fairly and justly represented, it is all they deserve—all I ever asked for them. Were they properly represented in 1882? Are they properly represented now? *Full, fair, just, special, and direct representation in Council to each country, each college, each county, city, and*

individual member of the body corporate, at one-fifth the expense and trouble of the present system, is the sum and substance of the Parliamentary scheme I proposed in 1882—nothing less, nothing more.

Let Dr. Fleming, and Mr. Banham, and the Members of Council of 1882 read and understand the scheme, as they will find it in the VETERINARY JOURNAL and the *Veterinarian*, July, 1884. Let them master its little simple details; let them not, like one at least of the Council, require to be “informed” about it; and let them come to your pages, sir, and condemn it if they can. That is the manly, straightforward course to pursue, and no one will be better pleased to see them following it than myself.

To conduce to this end, I tell the advocates of the past and present systems of election and representation of the Royal College of Veterinary Surgeons, that these systems have been, and are, *partial* and *unjust* systems, favouring the south at the expense of the north—favouring members and populous centres, filling the Council with men who have not fairly represented, and do not fairly represent the veterinary profession throughout the United Kingdom. I tell them that by a common vote or plebiscite, a Council fairly representative of all the veterinary surgeons of the country never has, and never will be obtained; the dull, dead, heavy force of the 1,500 practitioners of England tells at the poll with fatal force against the 350 of Scotland. I tell them that their present system is a cumbrous, heavy-working, selfish, tyrannical, antiquated system—causing much work, spending time and money, and giving a bad result—old as the hills, and well nigh as heavy; worse even than that of the primitive ancients, for heathens and savages generally know the men they are to vote for; but we each year have to leave in or to erase the names of many men of whom we simply know nothing whatever. I tell them, moreover, that in the Parliamentary mode they will find a plain, simple, easy, inexpensive, fair, and just mode of election and representation that will fill the Council-chamber with men fairly representing the profession throughout the length and breadth of the land, and form a Council worthy of the Royal College of Veterinary Surgeons of Great Britain and Ireland.

These are plain, rough words. Let Dr. Fleming, Mr. Banham, and the “Council of 1882,” and those of like mind with them, disprove them. The argument is stale that the Parliamentary scheme would require a New Charter. Where there is a will there is a way, and new charters have been obtained, in my humble opinion, for more unworthy objects. The present system of election required a New Charter, and so did the Fellowship Clause, and the Fellowship Clause has created much disturbance and discontent, and bids fair to divide the profession once more.

The spectacle at Carlisle, on pages 126 and 127, is very edifying. Mr. Greaves, of Manchester (high and lifted up as a “Fellow”), calling to the “excellent men,” the “educated men,” the “eminent men,” the “worthy men” of “our profession” (who happen to be far down below plain members), “See the height and high position to which we Fellows are striving to attain. Come up and join us; we want ye, every one. The whole profession in England, Scotland, and Ireland was carefully and most anxiously considered for the men of excellence, and the best selection made,” and Mr. Greaves, of Manchester, and his fellow-councillors were included, and a host of really good men left out; and this was the work of the Council and their New Fellowship Charter.

Had the Council, sir, allowed the Fellowship Clause to slumber for the next twenty years, and “gone in” for a better and fairer and simpler mode of election and representation, they would, so far as I am able to judge, have acted wisely and well.

Slateford, 17th August, 1885.

C. CUNNINGHAM.

AN APPEAL TO THE VETERINARY PROFESSION.

DEAR SIR,—At one of the Council meetings a letter was read from the widow of the late Mr. A. Bowles, V.S., of Ely, who left his widow penniless. She has been bedridden many years; the only son at home is paralysed on the right side. Mr. Hardcastle, V.S., of same town, states:—"I have no hesitation in saying any help would be charity well applied, and sadly, most sadly needed."

It will give me great pleasure to receive any subscriptions you will kindly forward me for this benevolent purpose, and which shall be at once sent to her.

THOS. GREAVES.

Knott Mill, Manchester, August 12th.

P.S.—I have collected and forwarded £10 to her; a list of subscribers will appear in October journals.

TO CORRESPONDENTS.

F. RAYMOND.—Perhaps the best professional journal in German is the quarterly *Deutsche Zeitschrift für Thiermedizin und Vergleichende Pathologie*; in French, the *Recueil de Médecine Vétérinaire* is the best, and is published semi-monthly.

F.R.C.V.S.—It is entirely wrong to assert that the profession was not made aware of the terms of the Charter with regard to the Fellowship degree. In the published Proceedings of the Royal College, in the publication of the Charter itself, in editorial articles (notably that in Vol. iv., p. 268), and notices, as well as in correspondence, in this Journal, constant allusion has been made to the degree. Everything has been done openly, and with the full knowledge and consent (if silence implies consent) of the profession.

INQUIRER.—Membership and Fellowship of the Royal College are only to be obtained by examination. The College has the power, conferred by Charter, of electing Honorary and Foreign Associates.

G. A. McLAUGHLIN, U.S.A.—We see no advantage in publishing your letter, which is very long and too personal, and would, it is to be apprehended, have no beneficial influence on the individual to which it refers. He will become toned down with time.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from Prof. McCall, Glasgow; A. Shawcross, Louth; C. Gresty, Newcastle-on-Tyne; R. Laidlaw, Albany, N.Y.; J. H. Steel, A.V.D., Bombay; C. Hartley, Lincoln; G. A. McLaughlin, Providence, U.S.A.; "W.H.D.;" E. A. Hollingham, Redhill; E. Beddard, Wolverhampton; J. A. Nunn, A.V.D., Lahore; T. Chalwin, South Australia; "Inquirer;" J. Hunter, Skene; G. A. Banham, Cambridge; J. Mills, A.V.D., Madras; H. Kidd, Hungerford; R. Rutherford, Edinburgh; J. B. Wolstenholme, Manchester; J. Nettleton, Northallerton.

BOOKS AND PAMPHLETS: Annual Report of the Department of Health of the City of Brooklyn; *G. Gresswell*, The Place of Physical Science in Education; Annual Announcement of the New York Polyclinic; Bulletin du Comité Consultatif de Belgique; *W. Zopf*, Die Spaltpilze; *A. Johne*, Ueber die Koch'schen Reinculturen und die Cholerabakterien; *M. Cornevin*, Première Etude sur le Rouget du Porc.

JOURNALS, ETC.: *British Medical Journal*; *Lancet*; *Archiv für Wissenschaftliche und Praktische Thierheilkunde*; *Annales de Médecine Vétérinaire*; *Recueil de Médecine Vétérinaire*; *Österreichische Vierteljahresschrift für Wissenschaftliche Vétérinärkunde*; *Revue Vétérinaire*; *Revista Popular de la Exposicion Rural*; *Der Thierharzt*; *L'Echo Vétérinaire*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Live Stock Journal*; *Mark Lane Express*; *Der Hufschmied*; *Quarterly Journal of Veterinary Science in India*; *National Live Stock Journal*; *Clinica Veterinaria*; *La Presse Vétérinaire*; *American Veterinary Review*; *Edinburgh Medical Journal*; *Field*; *British Medical Journal*.

NEWSPAPERS: *York Herald*; *Adelaide Express and Telegraph*; *Hamilton Advertiser*; *Eastern Counties Gazette*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

OCTOBER, 1885.

EPITHELIOMA IN A DOG.

BY F. F. COLLINS, F.R.C.V.S., DUBLIN.

ON the 1st June last, my advice was sought by a Mr. P——, relative to a large dog of the retriever class, that had an excrescence at the extreme point of the inner toe of the off fore-foot. The dog was in very good condition, and eight years old.

A superficial examination of the ulcer disclosed an exposed surface fully an inch and a-half in diameter, possessing a lobular nodulated aspect, dry to the feel, of a dark rusty-red colour, with edges somewhat everted ; altogether it was not unlike a dry "Bursatti" sore. The substance of the tumour itself appeared about the size of a small hen's egg. The toe-nail had disappeared, how or where I could not gather ; and the only history I could glean of the case was that the disease was first noticed some three months previously, by the dog licking the paw, his lameness increasing, culminating in complete objection to place the foot to the ground. Upon closer examination, I found the tumour extremely sensitive, the deeper portion particularly dense, and involving the second and third phalanges.

I confess I was somewhat bothered to determine the exact nature of the disease, for it was evidently one of no ordinary character, and the books at my command on canine pathology did not relieve my perplexity. The ulcer was apparently cancerous, and the deeper tissues participated in the disease. Under these conditions, I determined to remove the diseased portions

by excision. I therefore, with the owner's consent, and with the assistance of a medical gentleman—a well-known microscopist of this city—placed the dog under the influence of æther the following morning. I made a longitudinal incision the entire length of the two phalanges, both of which I found participating in the disease, the lower one presenting a bulbous appearance. I dissected the surrounding tissues from both bones, and removed them at the joint formed between the first and second phalanges. Hæmorrhage was somewhat profuse from three arteries, each of which I tied with catgut. The minor hæmorrhage was stopped by the application of hot water. The lips of the wound were brought together by catgut sutures, applied antiseptic dressing, and bandaged.

The diseased tissues were taken by the gentleman above referred to for minute investigation, who, in a few days subsequently, pronounced the disease to be true Epithelial Cancer, as the microscope disclosed the typical nucleated, flattened, thin, scaly cell peculiar to that disease.

The nature of the disease being determined, my treatment of the wound assumed more the character of inquiry rather than confidence, as I was not sanguine as to the exact condition of the remaining tissues. The upper portion of the wound closed satisfactorily, but the lower portion presented a hostile tendency. The wound soon assumed a slightly concave, papillary, spongy surface, tending to increase in size, but surrounded by apparently healthy, though everted, skin. These untoward conditions gave further food for mental rumination, the result of which caused my applying a powerful caustic to the centre of the ulcer, which produced a healthy appearance in the course of three days, when I found the tissues immediately beneath the integument at the edge of the ulcer disposed to increase. These I excised, together with the skin which covered them. The ulcer rapidly healed, with a daily dressing of a mild solution of nitrate of silver.

The foot was but slightly disfigured by the operation, and the dog recovered complete use of the limb, and as yet no reappearance of the disease has shown itself.

DERMOID GROWTH ON THE CORNEA.

BY J. NETTELTON, M.R.C.V.S., NORTHALLERTON.

A SHORT time ago I was asked by a client of mine to visit his place and examine a two-year-old bullock, which had something wrong with one of its eyes. On examination, I found a growth on the cornea, about the circumference of a shilling, and a quarter of an inch in thickness, with a tuft of silky hair, an inch in length, growing from the centre.

I removed the growth by the aid of cocaine; it was slightly vascular, and supplied with blood from the sclerotic coat, to which it was slightly attached at its lower margin.

I have not been able to procure the animal's history, as it was bought along with others out of an Irish drove only a few weeks ago. Although the growth was not noticed at the time, I have no doubt in my own mind but that it was congenital.

It will not be out of place here to bear testimony to Mr. G. Gartside Mayor's remarks on cocaine in the Journal of May last. As a valuable agent in veterinary surgery, I can now endorse all that has been written in its favour. I was, in this case, enabled to operate with the animal standing, without the least inconvenience to myself or pain to my patient. Without the aid of cocaine or chloroform, it would have been almost impossible to perform a delicate operation of this nature without injury to the cornea.

A CASE OF OSTEOID CYSTIC TUMOUR IN THE HORSE; ITS PATHOLOGY, AND SURGICAL AND ANTISEPTIC TREATMENT.

BY RICHARD W. BURKE, M.R.C.V.S., A.V.D., CAWNPORE, INDIA.

A C—B pony stallion, seven years old, the property of Mr. Darrah, C.S., Cawnpore, was recently brought for my opinion, showing a large tumour below the left branch of the inferior maxilla, on which I afterwards operated. Mr. Darrah's account, communicated to me through Mr. Thompson of the 1st Bengal Cavalry, was that the abnormality had been pronounced "congenital" by some medical authorities already consulted; that any surgical interference would involve an obvious risk, and

probably lead to its future recurrence, supposing operation were undertaken.

Such controversies are hardly intelligible except to professional men, and I must confess I did not base my prognosis on that phase of its testimony alone, which seemed opposed to what was explained by inquiry into the history of its causation; the result of which showed me that we must forego no opportunity, small or great, for realising first the causes of diseases, both in respect of diagnosis and prognosis, which must always pave the way for rational surgery, and constitute the only proper basis of treatment in similar cases, such as the least-experienced student in therapy may find no difficulty in appreciating.

The most interesting incident of the case was, perhaps, its *history*, which even to an exclusive clinician might of itself have sufficed to indicate the nature and significance of the pathological changes that were found to obtain, through the aid of the microscope, against discrepant and unconvincing opinions.

It may not be unimportant to state that the animal in question had been put to a mare some three months ago, and as he was about covering her, she, from "tetchiness," kicked him under the jaw, which caused the part to swell up, and become inflamed and painful. Mr. Darrah stated that there seemed at first to be a hope that, as time went on, the swelling would go down, without recourse to operative interference; and as medical opinion had been already obtained, this hope became almost a conviction. It was at length seen, however, that operation of some sort could not well be avoided for many weeks longer, and the owner consequently decided upon taking immediate veterinary opinion on the state of his animal, which had been thus far neglected through over-confidence in medical opinion hardly familiar with details of *special* clinical experience, and by reason predisposed to throw an air of mystery over one of the simplest events in pathology, as applied to the lower animals. If it is paucity of literature that has now and then brought the opinions of the veterinary practitioner to ridicule, I have my plea in communicating these few facts upon a subject of, what appears to me, such common occurrence.

Conflicting opinions having been given as to the necessity of

operation in this case, I may be reasonably excused for having brought myself to contemplate that contingency, and performed the operation. This result might have been to some extent anticipated, as the history of the origin of the growth, from what I gathered, was never previously obtained, and it was thought the process was, therefore, a congenital one. Having the history, however, to guide me, there appeared no mean possible, no delay in treatment; and I decided either to operate and suffer the disease to grow no longer, or let it go bad altogether. Happily in the present case, its history proved equal to the emergency; but it is not easy to understand, either from the owner's own description, or from examination made by me previous to operation on this disease-structure, how the process, which was sufficiently significant to come within the dimensions of a tumour measuring six inches long by four-and-a-half wide across its thickest diameter at the base, and exhibiting certain important histologic changes in addition, came to occupy so short a time as three months in developing.

Even taking into consideration the maximum of danger suggested by conflicting opinions, the operation generally must be regarded as after all trivial; since all that we need fear in similar cases is the presence of the branch of artery supplying the morbid growth with nourishment, which must be looked for and ligatured, even supposing it to be divided during operation, as was the case in my own patient: blood was spurted out with considerable force, its direction was carefully followed, and the vessel of emission secured and ligatured by silk in the ordinary manner, and without much difficulty. In fact, there was comparatively little or no hæmorrhage attending the operation, except what followed the division of the nutrient artery above described, immediately before it was ligatured.

It would be interesting to know if the physical characters of this tumour were akin to those of tumours of this class generally. Whether the distinction also was marked from a congenital growth; perhaps it was no greater than palpation usually reveals in these cases. It is curious, though, that whereas disease-growths of this description, and especially when they are not congenital, are ordinarily associated with heat,

pain, fluctuation, etc., it was possessed of neither of these peculiarities. Absence of inflammation and no fluctuation, together with a non-attached, movable condition of the skin covering this growth, as that noticed in health, combined to make the diagnosis one of peculiar interest. With a tumour thus rapidly growing, moreover, it was but natural to expect that the chances of operation would tend to become daily more remote, if not impracticable, owing to extension of the disease process which delay would necessarily entail. It is to this point, no doubt, that the practical veterinarian's attention is likely to be principally directed.

Inasmuch as a tumour of such considerable size, and giving attachment to bone, had to be removed, chloroform was administered. For the sake, probably, of regular union, the skin was divided by a circular incision made by the scalpel, about an inch below the base of the tumour, which was firmly adherent to the posterior border of the inferior maxilla, and blended with it by a fibrous attachment. The skin covering all was next enucleated, the masseter muscle on that side was carefully dissected back to the extent of about an inch or more, and the hyperplasia, together with the maxillary border thus exposed, amputated. This done, the wound was washed with a 1-40 solution of carbolic acid, the skin stitched, and the whole dressed with cotton compress and bandaged over by one or two rolls of flannel, to keep the dressing in position and prevent access of air into the wound. Every portion of diseased tissue had thus carefully been removed, and diseased bone completely cut away, that there should be no chance of recurrence.

The tumour, which was carrot-shaped, and found to be made up of five descending cysts, was filled with a colourless or slightly yellow serous fluid, which escaped on puncturing its walls, had doubtless originated by a succession of developments, and by fresh softening—until it was finally removed by operation, before attaining a sixth development, which it probably would have done, if the process had been allowed to continue unchecked very much longer. Ossification of the walls of the cysts, more especially marked in those of the first formed at the base, had taken place, and in places fibroid transformation, in which

calcareous matter was more or less abundantly deposited, was also noticed, leaving the intervening portions soft, cartilaginous-like, and presenting numerous superficial centres of ulceration, especially marked on its internal surface.

Microscopically examined, the tumour was found to consist essentially of the same histological elements, as true Enchondroma.

The cysts at a guess might have held a clear pint of fluid.

A fact of singular importance, which I have never before witnessed in any animal, was noticed to follow the state of anæsthesia from chloroform inhalation in the case of my patient, viz., an apparent cloudiness and opacity of the cornea, which gradually passed away as he recovered consciousness again. This would seem to be due to temporary inertia of the corneal vaso-motor centre, causing stagnation in the lymph-spaces. What is still more significant, and not so easily explained, is the fact of its occurrence more in one eye (right) than in the opposite; both were, however, perfectly healthy, *i.e.*, preceding and some time after the effects of the anæsthetic had been tried.

The after-treatment consisted in constant steaming of the wound with *neem vapour*, and assisting a free discharge, conditions reasonably favourable to the healing process in all wounds. True, the followers of Lister have shown that the secret of his great principle lay, for the most part, in the system of *drainage* that was thus ensured whether, through the interposition of the gauze, sponge, catgut, horse-hair, gutta-percha tubes, or other agencies; even more, perhaps, than in the specific precautions themselves that are adopted for directly attacking the cause* of discharge in wounds, septic irritation. And in veterinary practice, I think, neem vaporising may reasonably intervene as a valuable adjunct to the other means of drainage just enumerated, and generally employed in the antiseptic dressings of those wounds which are characterized by much tissue-discharge, or where bone is injured.

The absence of inflammation in wounds so treated was one of the salient features of that following the operation on my patient, which must be attributed to the sole effects of neem

* "Without Micro-organisms no Suppuration." By M. Strauss. 1884.

vapour causing its closure and ready union in the comparatively short space of twenty-one days. It is now perfectly healed, is not accompanied by any puckering of the surrounding skin, as sometimes obtains in these cases, and has no feature about it that would lead me to suspect a probable return of the morbid growth.

“Neem fomentation,” by surrounding a wound with a germicide vapour, proves antiseptic, not only by assisting free discharge, preventing inflammation of wounded tissues and putrefaction of the discharge, but probably also by rendering inoperative the germs that enter in it.

The wound was also dusted over with *Iodoform*, and cotton wool used as an antiseptic plug, in the intervals when the men in attendance gave way to a species of temporary *vis inertia* from which the native of India is proverbially said to suffer. The discharges throughout were in this manner kept inodorous, aseptic, and all that could be desired.

It is strange to note, only the other day (March 15th) I was reading an account of the “antiseptic value” of *Iodoform* as claimed by Dr. Ladislas Lesser, of Leipsic, when my patient I am now describing had been cured and discharged from hospital just a fortnight previously. I may state, however, that I received my bias in regard to the properties of *Iodoform*, not from Dr. Lesser’s account, but many years ago, in Mr. Chiene’s wards in the Edinburgh Royal Infirmary, 1877-8, when I had large opportunities of watching its effects, at least on the human patient. The belief then was that it was an *irritant*, and caused suppuration in a wound; it is nothing of the kind, however, as its more extended employment afterwards proved, and as Sir Joseph Lister has himself since abundantly demonstrated.

It is as well to mention in this connection that Billroth of Vienna, Dr. Burgmann, Professor Richard Volkmann of Halle, and all the best authorities, both in England and on the Continent, are now pretty well agreed that, to dress a wound antiseptically, it is not essential in every case to employ the carbolic spray. Besides, the principle of *rest* advocated and applied in practice by John Hunter, counts for something in these cases. But it is not at present intended to take up the subject farther.

The system of treatment by *neem fomentation* in the case of castration wounds, with native practitioners, dates from the earliest times ; but its explanation has hardly been before given, or its *raison d'être* fully described.

PECULIAR CASE OF OCCULT LAMINITIS, OR LAMINAL CONGESTION.

BY J. HUNTER, V.S., SKENE, ABERDEENSHIRE, N.B.

THE apology I make for briefly chronicling this case—if, perhaps, a corner of space may be found for it in the VETERINARY JOURNAL—is that, as far as I am aware, with recovery it may be a *rara avis*. While at tea one evening in the middle of November last, I observed one of James Proctor's, Esq., of Kirkville, carriage horses pass the window, showing a miserably haggard countenance and a spasmodically tottering gait. So much so, that I passed the remark that I would require to see that animal before he reached home again. Accordingly, after having some of his shoes removed and put on again in the forge at the other end of our tiny village, I had a call from the coachman stating that one of their horses had *stuck* on the way from the "smiddy," and would not move a step. On approaching the animal I observed the unmistakable fiery flash of fever in his eyes ; pulse about 100 and irregularly intermittent, respiration much accelerated, but temperature nearly normal. The hind legs were drawn forward under the body in such a fashion that the four feet were nearly all in contact. By dint of shoving and pushing, and now and again manually lifting and shifting a foot, he was at last with difficulty got into the stable, where the shoer, with the assistance of a few other men, had much trouble in removing the fore shoes, the one foot being as bad as the other. On manipulation of the limbs and feet, the only tangible symptoms I could find to account for such lameness was the manifestation of pain on gently tapping and squeezing the walls and soles of each fore hoof. Between four and five quarts of blood were immediately abstracted, an aloes ball administered, and I ordered the feet to be placed in a fine linseed poultice,

and periodic doses of Fl. Tinct. aconite to be given. On calling next day, fully expecting, as usual in apparently similar cases, to find a mitigation of the severity of the symptoms, I was rather astonished, instead of this, to observe their intensification. The animal was in a painfully-looking stretched-out position, with the fore limbs shaky and determinedly posted out forward, seemingly suffering extreme pain, constitutionally as well as locally. A summing-up of the state of symptoms not warranting further phlebotomy, I advised an increase in the dose of aconite, with simple febrifuge medicines and a continuance of poulticing. Third day: Constitutional symptoms slightly easier, bowels relaxed, with bad smell. Treatment same, with addition of diuretic powder. Fourth day: Much the same, but bowels constipated; the groom complaining of the terrible business of changing the poultices, the horse not having as yet dared to lie down, and it was scarcely possible to hold up either of his fore feet for a moment. On examining the feet I found a perceptible swelling around both pasterns—slightly more so on the one limb than the other. There was a little abnormal heat of the wall and sole of each hoof, but the animal was utterly unfit for the slightest locomotion. Advised the discontinuance of poulticing, and the feet to be placed in finely-made clay, and cold-water swabs applied round the pasterns, and administered a laxo-derivative ball. Fifth day: Constitutional improvement. Prescribed some alkaline powders; spare diet, restricting his regimen to a few fresh carrots, a mouthful of bran-mash, and a bite or two of hay, with cold water *ad libitum*. After a few days he began to lie down and rest himself, and the symptoms were markedly easier; the feet now being kept in leather boots amongst fine clay, there was a gradually improving state of matters for about three weeks. The following week, however, showing no improvement, I had the boots and clay removed. The pasterns seemed a little enlarged—in fact, the very feet themselves looked somewhat bigger, this being the more noticeable as the one was more so than the other; but there was no appearance of contraction or rings, and no loosening or convexity of soles, or any of the usual results of Laminitis. On visiting next morning, I had him led out—the result being that

he could scarcely cross the road without tumbling on his nose, but on the greensward he could walk wonderfully well. Prescribed a sharp blister round the coronet, to be repeated in the course of eight days. A fortnight afterwards I had him *shod*, but his locomotion proved very uncertain and short on the hard road, especially one fore foot, which still remained perceptibly larger—this extending as far up as the pastern joint. So, fancying from what I had seen and also what I had read about such cases in this valuable Journal and elsewhere, the animal might be of no more use for carriage purposes, I proposed having him examined by some of my professional friends. This accordingly was done: firstly by Mr. Sorley, M.R.C.V.S., Hazelhead, Aberdeen, who pronounced the case to be fracture of the coronary bone of the left fore limb, and that he would be of no more use for road purposes; secondly by Mr. Thomson, M.R.C.V.S., Aberdeen, County Inspector, who sent us a *certificate* that the horse was suffering from Ringbone, and was incurably useless for carriage purposes. Deriving but scant comfort from these different opinions, I fell back upon my own resources, and commenced blistering again, repeating it every ten days for a month. The response to this treatment was so encouraging that he was sent away to the neighbouring farm of West Fornet, to take a turn at the plough. Mr. Dewar, M.R.C.V.S., Kintore, who had a look at him some time afterwards, gave it as his opinion that he had suffered from a sprain. Latterly, Mr. Able, farmer, purchased the animal, and he is now doing his road work in the dog-cart, and taking a turn at any other work, apparently as sound as a bell. The gradual disappearance of the swelling, and the non-appearance of any other abnormality in the parts give reasonable grounds for supposing that recovery is permanent.

Note.—It must be understood, or at least I presume, that these three professional gentlemen whose names are quoted did not know the previous history of the case before giving their opinions; and I communicate these facts simply with the view of illustrating the peculiarity of the case, and how apt we are, at different stages of some of these singular diseases, to form so many erratic diagnoses and prognoses.

HYDROCHLORATE OF COCAINE: ITS USE IN OPERATING ON THE EYE FOR *FILARIA OCULI*.

BY J. MILLS, M.R.C.V.S., A.V.D., MADRAS.

HAVING heard a great deal regarding the advantages of the use of hydrochlorate of cocaine in operations on the human eye, I decided on the first opportunity to give it a trial.

Fortunately, a case was admitted into the Government Civil Veterinary Hospital under my charge, on the 2nd of June, 1885. The patient was a large waler mare, extremely troublesome and nervous—in fact, it was with the utmost difficulty that anything like a good view of the eye could be obtained. I therefore cast her, when the parasite was clearly seen wriggling about in the aqueous humour. There was slight inflammation, with partial opacity of the lower portion of the cornea, involving nearly one-half of its surface, which was undoubtedly brought about by the case having been allowed to go too far before surgical aid was sought for, as the worm had been noticed in the eye fifteen days before the mare was brought to me.

This operation, although by no means new, has, I venture to think, never before been performed by the aid of this new local anæsthetic. Therefore I trust a short history of the operation and the drug will not be without its interest.

I procured a solution containing one grain of cocaine in twenty-five minims of water—or of a strength of 4 per cent. The membrana nictitans was held back, and the solution painted over the surface of the cornea, conjunctiva, and eye-lids, with a camel's hair brush. In about ten to twelve minutes complete anæsthesia had taken place, with considerable dilatation of the pupil. I then made a small puncture with the point of a Macnamara cataract knife, well guarded with lint, at the upper portion of the cornea, through which the filaria escaped. In a little less than twenty minutes sensation returned to the eye. No inflammation followed the operation, and the case has done well from the first. The opacity is gradually disappearing, and patient will be discharged in a few days.

I have found, from considerable experience of these cases, that there is no instrument equal to the Macnamara knife.

This new local anæsthetic cannot but prove of the utmost value in veterinary practice, more especially in operations on the eye. It has only one drawback, and that is its high price. Previously, in operations of this kind, I always administered chloroform with the best results, and of course—although I have never had any accidents with chloroform on the horse—still the danger attending its use, compared with that of cocaine, is great indeed. Therefore the latter must, for the future, act as a valuable and safe substitute for chloroform in the production of local anæsthesia.

DESCRIPTION OF THE DRUG.

The plant from which the alkaloid cocaine is obtained is known to botanists as *Erythroxylon coca*, a member of the N.O. Linacææ. It is a bushy shrub, with numerous smooth leaves, which are lanceolate or somewhat oval in shape, and tapering towards the petiole. The flowers are small, and of a yellowish colour. The fruit is a little drupe, over one-fourth of an inch in length, ovoid in shape, quite plump when green, but furrowed longitudinally when dry.

The coca plant is cultivated extensively in Peru, Bolivia, Columbia, and in some other parts of South America. It is said to thrive best in a moist, mild climate, at an elevation of 2,000 to 5,000 feet above sea-level. In this Presidency it is said to grow very well at sea-level on the coast, but its cultivation might be much easier and more profitable at higher altitudes.

In some parts of South India a species somewhat resembling the American one, viz., *Erythroxylon monogynum*, is said to grow well, where it is known as “Devadaree” and “Adavi Goranta.” The therapeutic value of this shrub has not yet been determined.

Note—Since writing the above the mare has been discharged from hospital, with complete restoration of vision, and no opacity whatever of the cornea, twenty-four days after the operation.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(Continued from page 171.)

OPHTHALMIA is so well known that it needs but slight mention ; still, I think, much as we are acquainted with the disease, it frequently passes before us in our examinations as to soundness without any remark being made of its presence. If the owner of an animal in question was aware of the feelings of his trusty steed, he would in all probability consult some member of the profession as to the presence or absence of the disease, and I have no hesitation in asserting that the verdict would be in favour of its presence, and a recommendation of treatment such as appeared advisable under the circumstances. How different it is when called upon to examine as to soundness : although it is seen and known, scarcely any one would venture to write the word *unsound* against the horse, yet no person would assert that it would be wrong to do so. Custom, however, and the imperfect state of the law, are the two causes in operation at the present time, and for many years past. When we take into consideration the speedy manner that diseases of the eyes of our equine patients run their course, it becomes necessary to pay a little more attention to them than is generally done. I have been often surprised at the issue of a case, not having been prepared for it. I confess I have examined many horses whose visual organs appeared to me to be in a very suspicious condition, still I dared not state that I considered the animal would soon be subject to an attack of acute inflammation which, in all probability, would end in the loss of vision. It has been held by some practitioners that we have merely to state our opinion with reference to the present, and have nothing to do with either the past or the future. This may hold good when writing certificates in one particular form—for instance, if we certify that a horse is sound, or that he is unsound. This mode of expressing an opinion is very fair and legitimate, but if we take the better course which I have for many years past endeavoured to establish, then I think we may carry our investigation somewhat further, and offer an opinion as to the

probable result of any defect we may meet with. This has always seemed to me to be the object of an examination as to soundness. If an animal has an enlargement upon a limb, it can be seen by the purchaser as well as by the surgeon, but the former may require the experience of the latter as to the nature of the enlargement, which will influence him as to whether the animal be retained (purchased) or not. So it should be with defective sight. An eye may be small or prominent ; either of which may be a defect and cause the animal to shy ; or the horse may be subject to periodic attacks of Ophthalmia which will terminate sooner or later in the loss of vision. This state of things should be mentioned. Experience teaches me that only a few cases are of a simple or harmless character. For the most part they are constitutional, and it is not likely cases of Traumatic Ophthalmia will be submitted to an examination. There are cases, however, occasionally produced which have already run their course, and one, if not both eyes, are found to be sightless. I fear that, as veterinary surgeons, we are almost as much in the dark as to the true causes of blindness as we were a quarter of a century ago. I think we have gained something in the way of treatment, however, for it is very remarkable, with our present store of information, how we can often defer the evil day for a considerable time by our promptitude and present system of treatment, which, so far, is a gain. Writers upon this subject differ as to the name this particular kind of disease should be termed. One wishes it to be called Specific Ophthalmia ; a second, periodic ; a third, odontalgic ; a fourth, lunatic ; a fifth, constitutional ; a sixth, hereditary, and so forth. I am inclined to the term constitutional, as being the most to be preferred. I say this with all deference to my teachers, as I know it is counter to the opinion of some of them ; but if the fact were known that scarcely anything learned when at school, so far as therapeutics are concerned, do I acknowledge or practise now ; all is changed with me, and I have for many years past struck out a path of my own, which, I am proud to state, has been of infinite service to me. My reason for naming this complaint constitutional, is from the fact of there being a peculiar idiosyncrasy in the animal to contract this particular affection.

The term lunatic, or moonblindness, is so absurd that it needs no second thought. Periodic is a very good term, because the eyes are attacked periodically, but for no other reason that I can see. The word hereditary has a too sweeping significance to be used generally. If we employ the term, it most certainly has reference to the whole family. It may be argued, on the other side, that the word constitutional will have the same tendency ; but I cannot agree that it has. The animal affected with this ailment may be himself alone subject to it. I know of several similar instances in the human family. Writers upon these diseases appear to have mixed up the various kinds too confusedly. Although the horse is not liable to so many eye-diseases as man, still I am far from believing that the several cases I have seen should be treated of so indiscriminately in books as they are. Percivall gives a list of about fourteen different diseases, which are insufficient for the present state of our art. The treatment may be alike in most cases, but at the same time it behoves us to keep pace with the times, and pursue the same course that writers in the sister profession have done. The entering thus far upon matters surgical may be considered a digression.

We have merely to consider whether the eyes under examination are in a normal or healthy state ; for, as I stated before, it is seldom we are called upon to inspect eyes until all the acute symptoms have disappeared ; and when the owner is sanguine that his horse will pass he offers him for sale. It is at this juncture that the best of our judgment is frequently required to be put in force. We will suppose an animal has had an attack of, as I must call it, Constitutional Ophthalmia—he may or may not have had the advantage of professional attention. The owner is of opinion (as most owners are) the horse is sound ; he offers him for sale at a fair ; he succeeds in parting with him, subject to the examination of a veterinary surgeon. This may be in the month of July, August, or September, when the weather is extremely hot and the day bright. In all probability there is no house near the spot, in which the horse can be placed for the examination of the eyes to be proceeded with. The muscles of the iris have effectually done their work by closing the pupil, so

as to baffle all the attempts of the examiner to look beyond the iris (the use of a hat not being in such a case of the slightest assistance). The horse is returned sound, because of the contraction of the pupil. He is said to be all right in this respect. A horse may be totally blind, and yet the contraction of the pupil take place. One instance, by way of example, I will relate, which occurred in my practice. A nobleman purchased a mare and requested me to examine her, which I did, and the eyes were pronounced amaurotic. The mare was of course rejected, and as there was a fair to be held soon after, it was believed she would be offered there. The nobleman said he would look out for her at the fair, and ascertain if she were sold and examined, as I told him she doubtless would pass if the day was a sunshiny one. The mare was sold, examined and passed, much to his lordship's amusement, who told me of the circumstance on his return from the fair. In Simple Ophthalmia the eye generally becomes sound and healthy, unless a small feather-like opacity remains from the injury. A few days since a case was submitted to me for examination by an M.D. who had purchased a horse of some value. He said that the left eye had been wounded and a mark—opacity—was present, but if I thought perfect restoration would take place soon he would not object to conclude the purchase. I found the transparent cornea had been much injured immediately below the pupil, and an opaque line was observable above the pupil, consequently in his then present condition I could not pass the horse. The owner asked if I could give him a remedy. I prepared a suitable application, which he took and employed for a week. On his return I found the wound perfectly healed, but the opaque line still remained. In old cases of Keratitis, we frequently find traces of disease which will, more or less, intercept the pencils of light as they proceed to the retina. With such cases it is not very difficult to deal. They are of necessity unsound. The diseases of the cornea, iris, capsule of the lens, lens, vitreous humour, and retina, are those we have chiefly to consider, although a passing thought may be spent upon the palpable injuries which now and then require that a portion of either one or the other be excised. I think the time has nearly passed for any person, however antiquated his views

may be, to think of excising the *cartilago nictitans*, although I sometimes hear of such a complaint as the "Haws" existing. Keratitis or Inflammation of the Cornea, is a complaint of some moment to the veterinary surgeon, because an attack of Simple Inflammation is likely to extend to this structure. The fact of there being more than one layer in the cornea, renders the disease more complicated in its treatment than it would be if only one was present. Indeed, I think this remark holds good in the treatment of all diseases. It is not probable we shall have our attention directed to a case for inspection until it assumes the chronic stage, which can readily be known by the colour of the membrane. If not perfectly transparent it must be held as unsoundness. The aqueous humour is not liable to a distinct disease that I am aware of, although I have observed a muddy appearance of it, and likewise pus in its composition. Iritis often follows an attack of Keratitis, and is occasionally its accompaniment; the result of which, if not taken care of, will be an adhesion of some of the fibres of the iris to the capsule of the lens, which will interfere with its movements. Any abnormal change in its structure will constitute unsoundness. The corpora nigra in some eyes are particularly large and pendulous. This has been held to be unsoundness by some teachers, but I have never known them, however large, to cause the least inconvenience to the horse, nor would I reject an animal having them largely developed. Cases of the kind have been brought to me in dispute, and I invariably consider such as matters of no moment. I have both ridden and driven horses which possessed these enlargements, and always met with them in the best of eyes.

(*To be continued.*)

THE INFLUENCE OF HEREDITY AND CONTAGION ON THE PROPAGATION OF TUBERCULOSIS.

(Continued from p. 185.)

Country Breed.

Price of Animals.				Total value of a Lot of 100 Cattle.			Total average No. of Cattle.	
Calves	...	25 to	30 marks	...	175 to	210 marks	...	7 calves
Heifers	...	130 „	150 „	...	2,990 „	3,450 „	...	23 heifers
Cows	...	150 „	200 „	...	7,650 „	10,000 „	...	51 cows
Bulls	...	150 „	250 „	...	1,500 „	2,500 „	...	10 bulls
Oxen	...	350 „	450 „	...	3,150 „	4,050 „	...	9 oxen

15,465 to 20,410 marks 100 cattle

Maximum and minimum averages 204 to 150 marks.

Average value of each animal, 180 marks.

The average value of an animal of improved breed is, for the breed of—

(a) Messkirch...	...	...	...	...	297 marks
(b) Neckar	...	...	...	...	237 „
(c) Baar	...	...	...	...	276 „

With regard to the indigenous breeds, the price for each animal is—

(a) The Forests	...	...	...	...	151 marks
(b) The Odenwald	...	...	...	...	146 „
(c) The country in general	...	...	...	...	180 „

The animals of the three country breeds therefore average about 215 marks each animal.

From the annual abstracts of the district veterinary surgeons, the total number of these common cattle is to the improved breeds as 3 to 2. The value of an animal, such as we have estimated it, is therefore perhaps 10 per cent. more than the real value; for in our calculations the two groups have been reckoned as equal.

The prices of the animals estimated in these calculations have been compared with the prices at the Cattle Market of Mannheim, and they do not differ much; in fact, the average price at this market is, for—

9 fat bullocks	...	3,546 marks, or 394 marks each
55 lean bullocks	...	12,815 „ 233 „ „
7 milch cows	...	1,988 „ 284 „ „
29 calves	...	1,073 „ 29 „ „
100 cattle		19,422 marks

We may therefore estimate the average price of each of these animals at 194 marks.

Taking for the basis of our calculations the information furnished by the local assurance associations provided with regular statutes, we find the average value of an animal to be 169 marks.

With regard to the compensation which has been paid to cattle-owners for animals slaughtered by the authorities, we find that the average assessment in estimating 159 animals slaughtered has been 198 marks.

In considering all the figures, we may admit that the average value of a bovine animal in the Grand Duchy of Baden is about 200 marks.

Theoretical calculations having given, as the average value, 215 marks, the Mannheim fairs value 194, the local assurances value 169 marks, and the estimate of animals slaughtered by order 198 marks, we may admit the average value to be $\frac{215}{4}$ or 194 marks.

The *third question* we have to solve is relative to the annual loss in cattle. The following is the information we have gathered :—

				Dead.		Killed.	
In 1872	...	...	548	...	...	3,830	cattle
„ 1873	...	...	473	...	...	4,189	„
„ 1874	...	...	677	...	...	5,204	„
„ 1875	...	...	1,053	...	...	5,060	„
„ 1876	...	...	898	...	...	4,805	„
„ 1877	...	...	796	...	...	4,654	„
„ 1878	...	...	893	...	...	4,586	„
„ 1879	...	...	1,170	...	...	6,736	„
				-----		-----	
				Total 6,508		39,064	„
				Annual average 814		4,883	„

The yearly average of animals which died from 1872 to 1879, was 0·13 per cent. of the bovine population, and that of animals killed during the same lapse of time was 0·76 per cent., or a total of 0·13 + 0·76 or 0·89 per cent.

In making the same abstract from the information supplied by the assurance societies, we find the following figures :—

The annual average of cattle insured during the period between 1872 to 1879, was 91,818, the average loss being

1,317, or 1·4 per cent. yearly. Between this and the preceding abstract there is a difference of 0·51. This difference is perfectly explained by the fact, that it was more particularly the small farmers who insured their cattle; and these, being worked, were more exposed to accidents than cattle not so employed. So that there is more danger by 0·5 per cent. for working than for non-working cattle in the Grand Duchy of Baden.

The *fourth question* to solve is that of the amount of pecuniary loss caused by the mortality in cattle. According to the above calculations, the average value of each head of cattle in the Grand Duchy of Baden is 200 marks. The skin is generally the only portion of an animal which has died naturally that may be utilised, and it has scarcely 4 per cent. of the total value of the carcase, and should, consequently, be estimated at 8 marks.

From the above calculations, it appears that in the time between 1872-1879, 814 cattle died, and the value of each being on the average 200 marks, we find that the total loss may be estimated at 162,800 marks per year. From this sum we may deduct 6,512 marks, or 4 per cent. saved in utilising the skins of these animals; thus leaving the average sum of 156,288 marks lost annually in animals which died in a natural manner. Twenty per cent. of those necessarily killed were, to judge from the reports of the meat inspectors, of value besides that of their skin, 4 per cent. of their total value. Of 50 per cent., parts estimated at about 40 per cent. of the total value of the carcase could be utilised; and of 30 per cent., about 60 per cent. of the total value could be realised as if the animal could be considered healthy.

In seeking to determine the annual damage in the Grand Duchy of Baden, through loss of cattle from disease or accidents terminating in death, we arrive at the following results:—

The average number of cattle necessarily killed being 4,883,	
and each being estimated at 200 marks, the 977, or 20	
per cent. of these 4,883 animals, of which the skins only	
could be used, represent a value of 195,400 marks.	
The value of the skins being estimated at 4 per cent.	
of their total value, reduces this loss to 195,400—7,816,	
or	187,584 marks.
The 50 per cent. of these 4,883, or 2,417 animals which can	
only be partially utilised, represent a value of 483,400	

marks. The parts of the 2,417 animals which may be realised (40 per cent.) represent a value of 193,360 marks ; so that there remains in the animals a deficit of 290,040 marks.

The 30 per cent. of these 4,883 animals which remain represent a value of $1,450 \times 200 = 290,000$ marks. The realisable portions of these 1,438 animals, equivalent to 60 per cent., amounts to 174,000 marks. The deficit on the latter is therefore						116,000	„
In recapitulation, the sum lost upon animals necessarily slaughtered may be valued, for the Grand Duchy of Baden, at $187,584 + 290,040 + 116,000 =$						593,624	marks.
The loss on animals dying from disease						156,288	„
The total loss may therefore be estimated at						749,912	marks.
The total value of all these animals, died or killed, is $5,697 \times 200 =$						1,139,400	„
The total loss on these animals would be						749,912	„
The parts which may be utilised may be valued at $1,121,800 - 743,216 =$						389,488	marks.

The losses are therefore about 65·82 per cent., and the value of the parts realisable, 34·18 per cent. of that of the animals as they stand.

It would then be necessary to pay an average of about 132 marks for each head, allowing compensation equal to the entire value of the animal, the sum realised by the utilisation of the parts which have not been destroyed being deducted.

If we compare these figures with those furnished by the assurance associations, we arrive at the conclusion that, on the average, these pay 111 marks per head for cattle which have died or been killed, and a sum of 145,919 marks annually for the 1,317 cattle for which compensation is due.

In seeking to find, by analogous calculations, the rate paid in 1879 for cattle killed by order, because of epizootic diseases, almost the same result is arrived at.

The number of animals sacrificed in these conditions has been 159, 40 of which were affected with fatal maladies ; in the remaining 119 the diseases did not assume this character. On the average, each of these might be valued at 198 marks. For those which died, the compensation paid by the State has been fixed at an average of 131 marks, a deduction being previously made of one-fifth of the value of the animal and of the sum

realised by the sale of the useful parts of the carcase. With regard to the 119 head remaining, for which entire compensation is due, the State pays 99 marks per head, as a great part of the carcasses could be utilised.

If we actually add to the sum paid as compensation for each of the 40 cattle, the fifth of the value previously deducted, and subtract from the total loss the sum realised by the sale of the useful portions, we find that the real loss caused by this disease may be estimated at an average of 157 marks per head.

If we seek the average of compensation for these 159 animals, and take 100 as the basis for our calculations, we shall find that of the latter number there were, in 1879, 80 compensation cases at 99 marks, and 20 at 157 marks. The average compensation for 100 cattle may therefore be estimated at $7,920 + 3,140 = 11,060$ marks, or 110 marks per head.

The total value of animals killed by order of the police was $139 \times 198 = 31,482$ marks, of which 54 per cent., or 17,083 marks, has been paid by the State as compensation; the remaining 46 per cent. representing the value of the useful parts of the carcase.

It is therefore established, that if we desire to compensate without any other deduction than that justified by the sum derived from the sale of parts of the carcase, we ought, according to the theoretical statements, pay 132 marks per head; taking the accounts of the assurance societies into reckoning, this amount should be reduced to 111 marks, and according to the administrative reports, to 110 marks.

If we fix on the 132 marks per head, we should estimate the total loss with the loss to be covered, in a round sum, at $132 \times 5,697 = 751,040$ marks; but if we wish to have recourse to obligatory assurance, we evidently should not pay the *total* value of the animal, and the compensation ought not in this case to amount to more than about 80 per cent., as a share of the loss should fall upon the owner, to keep him from being negligent in attending to his stock.

The total value of the animals dead or killed by order of			
the authorities, without any deduction, amounts to ...			1,139,400 marks
Twenty per cent. of this sum, equivalent to	...	...	227,880 „
			<hr/>
Remaining			911,520 marks.

From the latter sum should be also deducted the value of
the products derived from the carcasses, or 33·75 per cent. 389,400 marks.

Remaining 522,120 marks.

Divided among the bovine population of the country, these 522,120 marks represent an assessment of 85 pfennigs per head. There must be added to the 522,120 marks a sum of 10 marks for each animal dead or slaughtered, if, as is very probable, the expenses of the experts are to be paid by the assurance organisation. Ten marks for 5,697 head of cattle makes 56,970 marks, or 9 pfennigs for each bovine in the country, and this, added to the 85 pfennigs allowed to cover the cost of compensation, raises the total annual premium to insure each head of cattle to 94 pfennigs.

In our calculations we have not taken into account the expense of collecting the premiums, as we have admitted that they should be collected by the receivers of contributions, who are paid for this service whenever money is gathered as indemnity for the losses caused by any epizootic malady; so that extending the assurances to all the losses among animals would not cause any increase in the pay of these functionaries.

To pay compensation for 159 cattle slaughtered by order of the authorities, the State would require to deduct previously the sum of 0·76 pfennig (less than a pfennig) per head of cattle. Supposing that this measure be extended to 5,697 or, in round numbers, to 6,000 cattle, there would be 28 pfennigs per head, or 37 to 38 pfennigs, including expenses.

In comparing these figures with those furnished by the assurance services, we arrive at the following conclusions:—

The annual average number of cattle insured by local societies from 1872 to 1879 was 91,818; of these the average yearly loss was 1,317, or 1·4 per cent.; and for each of the latter an average of 111 marks was paid. To cover the losses, then, it would require, in round figures, a contribution of 1 mark 60 pfennigs per head of cattle insured; and in adding to this a supplemental tax of 10 pfennigs for expenses, there is a contribution of 1 mark 70 pfennigs for each bovine.

According to the information furnished by the district veterinary surgeons in their reports, the premium which should be

paid for assurance of each head of cattle should be 95 pfennigs. From this, and also from the facts elicited by the application of the law with regard to compensation for loss of animals, the amount to be levied to carry out the compensation services would be 38 pfennigs for each bovine; calculated according to the indications shown in the assurance societies' documents, this sum should be 1 mark 70 pfennigs.

In each of these three divisions is included the expense estimated at 10 per cent. per head.

The *fifth question* is relative to the importance of the losses, considered in the different districts of the country.

The minimum and the maximum of the losses, according to the information up to date, are respectively 0.3 and 1.2 per cent. So that between the two there is a wide difference, but in the majority of the districts the losses vary in the averages; the extremes being only noted in four or five districts.

The value of the animals varies in analogous proportions in different districts. Considering the minimum rate of assurance premiums—whether 38 or 95 or 170 pfennigs per head be fixed upon—it is not convenient in an assurance society to have graduated premiums, by basing these on the differences in the gravity of the danger and the value of the animals.

The establishment of different premiums, according to the districts, does not appear to us to be justifiable, as it would be necessary in some parts to pay double the amount of assessment, because of the danger animals incur and their pecuniary value. In establishing compulsory assurance, we might accept the bases of the assurance laws of the Grand Duchy of Baden, promulgated January 30th, 1877, and March 6th, 1880.

The calculations we have made had in view *all* the losses in cattle, whether due to official or voluntary slaughter, because of disease, or from natural death. The losses which are occasioned by Tuberculosis constitute scarcely one-third of the total deaths; we may, therefore, for the Grand Duchy of Baden at least, maintain that if compensation is only allowed for cases of Tuberculosis, the assurance premium would not exceed fifty pfennigs; probably it would be less. And we should not lose sight of the fact, that after some years' experience of such a system of as-

surance, the assessments would gradually diminish, as by reducing the number of cattle affected with the disease we should also be diminishing its chances of propagation ; we should even abolish these chances altogether, as they depend upon the intervention of diseased animals.

If by the application of such a measure the malady would be considerably diminished in frequency, yet we could scarcely hope for its complete disappearance, as there would always remain the possibility of its transmission from mankind to animals. These transmissions are, however, rare, and might in every case be prevented by proper measures of isolation applied to tuberculous persons.

As we have, in the introduction to this work and in the discussion of the first two questions, demonstrated that Tuberculosis is a hereditary and contagious affection, and to such an extent that no other panzoötic malady exceeds it in these two points ; and as, in treating the third question, we have shown that the control and disinfection measures employed up to the present time do not give to mankind sufficient guarantees of protection against the danger of contamination by the flesh and milk of tuberculous animals, the Congress cannot, in our opinion, evade discussion of the question as to whether Tuberculosis ought, or ought not, to be classed among those diseases, the propagation of which should be combated by sanitary police measures.

If the meeting shares in our manner of looking at it, it will likewise approve, taking into account the incurability and the very frequent fatal termination of this malady, of our proposal to combat it by measures of sequestration, by the slaughter of diseased and suspected animals, as well as by the disinfection of infected places and articles.

The Congress also should agree with us in the awarding of compensation for animals affected with Tuberculosis, this compensation being likely, before everything else, to ensure the success of the other measures. And its utility is further enhanced by the fact, that the charge which its application entails, whether it falls on the treasury or cattle-owners, is very small, considering the great advantages to be derived from it.

In discussing the question relative to the injurious influence of the flesh and milk of animals affected with Tuberculosis, and in attempting to solve it, from an exclusively veterinary sanitary police point of view, the Congress will not exceed the limits of its attributes.

And in indicating the means whereby cattle may be preserved from the ever-increasing destructiveness of the scourge, the Congress will render an eminent service to all those persons who breed and trade in cattle and their products, and consequently to agriculture in general. Even without solving the question as to the transmissibility of Tuberculosis from animals to mankind, it will contribute indirectly to preserve the human species from the noxious influence which the flesh and milk of tuberculous animals might exert upon it.

The solution of this question directly touches the domain of veterinary sanitary police, properly so-called, and that of sanitary police in particular. It furnishes a radical means of satisfying, at one and the same time, the owners of cattle and the consumers of flesh and milk—a means which, we do not doubt, will be unanimously approved.

The commission entrusted with the preparatory study of the question relative to Tuberculosis, proposes to the Congress the adoption of the following resolutions :—

1. Tuberculosis is a disease transmissible by heredity.
2. It is contagious.
3. It should be classed among the affections which should be combated by sanitary police measures.
4. The measures to which recourse should be had are the following :—

(a) Every owner of domestic animals should be compelled to report immediately to the police authorities every case of Tuberculosis, or the appearance of any symptom which may lead him to suspect its existence ; the affected or suspected animal should be so kept apart that it cannot transmit the affection. The same obligation is incumbent on any one who takes the place of the owner of cattle, whether in a dairy, herd, pasture, or elsewhere.

Reporting the disease should be also obligatory on veterinary surgeons or other persons who professionally treat the domestic

animals, as well as on meat inspectors or others who, by business, have to do with the destruction, utilisation, or handling of carcasses or the products of these, if before the intervention of the police, they discover the existence of Tuberculosis, or, by recognising its symptoms, suspect its presence.

b. The appearance of the affection should be made known publicly, and the infected locality or herd designated.

c. Suspected and diseased animals should be sequestered, and their slaughter ordered as a police measure. Animals suspected of contamination should be kept isolated, unless they are few in number, in which case they should be slaughtered by order of the authorities. If the number is larger, they may be fattened and sent to the abattoir as soon as possible.

d. The stables or infected localities should be submitted to special police *surveillance* for a year, dating from the last case of disease. The sale of animals suspected of contamination should only be permitted if they are intended for immediate slaughter, and this operation should be attended to by a veterinary surgeon.

e. The place which had been occupied by a tuberculous animal should be cleansed and disinfected, and this should also be done when the malady has disappeared from closed stables or other localities in which diseased animals had been kept, and it should only be after disinfection that the police measures could be removed. During the existence of the panzoöty the stables should be kept properly ventilated.

f. In order that the flesh and viscera of an animal may be allowed for human consumption, the disease should be recognised (after slaughter) as only at its commencement, the lesions merely affecting a small part of the body, the lymphatic glands being still exempt from all traces of tubercles; or if tuberculous deposits are present, that these have not undergone softening; that the flesh presents all the characters of prime meat, and the general condition of the slaughtered animal was satisfactory at the moment of slaughter.

The flesh of tuberculous animals allowed to be sold as food, should be taken beyond the locality in which the animal has been slaughtered, and should not be sold at an ordinary butcher's stall.

Any quarter of meat, or any viscera showing tuberculous

lesions or changes, as well as the flesh of any other animal in which, at the autopsy, there is evidence of more marked disease than is indicated above, should be spoiled for sale by sprinkling it with petroleum, and afterwards buried under the surveillance of the police, though the extraction of fat by boiling may be authorised. The inspection of every animal affected with Tuberculosis should be made by a veterinary surgeon, who alone shall judge as to whether the meat is fit for consumption.

g. The milk of diseased or suspected animals shall not be used for human consumption, nor for that of certain animals, and its sale should be rigorously prohibited. The milk of animals suspected of contamination should only be consumed after being boiled.

h. An indemnity should be allowed, under certain reserves intended to prevent abuses, for cattle killed by order, in consequence of Tuberculosis, as well as for those which have died of the disease, and for those recognised as tuberculous after slaughter for food. The indemnity may be paid out of the public treasury, or by compulsory assurance organisations.

i. Infractions of the preventive and repressive measures should be punishable.

j. To protect the public health from the dangers by which it is threatened through the possible consumption of the flesh of tuberculous animals, or damaged or putrid meat, in every district a competent service for meat inspection should be instituted.

k. Establishments which are specially set apart to provide milk for sick people or infants, should be under permanent control, and have their milch cows submitted to the inspection of veterinary surgeons officially appointed.

In recommending to the Congress the adoption of these resolutions, we do not think we have exceeded the limits of the *necessary propositions*, if it is desired to get rid of the danger which has for a long time threatened the interests of cattle-owners, as well as the health of consumers, and is a real calamity.

(The foregoing report was, unfortunately, not brought on for discussion until the last day of the International Congress. Though the question of Tuberculosis was considered one of the most important, if not *the* most important, that could be ex-

amined at such a meeting, yet as it had been placed last on the list of subjects, and those which had preceded it had occupied so much time, there was at one period a proposition to defer its consideration until the next International Congress, to be held in Paris.

One speaker, in admitting that the question was not yet sufficiently ripe for discussion from a *scientific* point of view, thought that, nevertheless, it might be examined in a *practical* sense, and insisted that the Congress should decide whether it was prudent to abstain from eating the flesh of tuberculous animals. Another speaker was of opinion that the question as to whether such flesh should be consumed as food was a purely medical one, and added that at the last Congress held in Germany a decision was not arrived at for this reason. A third speaker said it was not possible to temporise in such a matter. Lyons, of which he was a delegate at the Congress, was waiting for a decided opinion on this question. In a practical point of view, there could be distinguished a *generalised Tuberculosis* and a *localised Tuberculosis*; he wished to know what should be done in one and the other case.

The President suggested that there should be a solution of the question, and the following proposition was put forward:—“Considering that it is indispensable that the Congress should give an opinion relative to Tuberculosis in connection with meat inspection, the undersigned demand that the Congress should declare that it is useful to fix the cases in which animals may be rejected or accepted as food for the public.”

Lydtin said that in the Grand Duchy of Baden, a law was sought for to regulate the measures necessary to deal with the disease, and that he and others had examined this important question. For centuries there had been regulations with regard to the malady. The flesh of diseased animals had been divided into three classes: Flesh of the first quality, which might be sold without restriction; flesh of the second quality, which could only be sold in certain places as low-priced meat; and flesh of the third quality, which was seized and buried. He referred to the diagnosis of the malady, and asserted that it was no more difficult than Glanders, especially when the latter was in an

occult or latent form. The existence of Tuberculosis is easily ascertained in the dead animal, notwithstanding the numerous kinds of alterations it might present. Everywhere are found traces of the influence of a foreign agent which has produced lesions wherever it has been deposited. There is no absolute characteristic of the disease; but a recent and very important discovery has thrown great light on the question, and given us, it may be said, a *criterium* of Tuberculosis. The presence of particular germs, the *bacilli* of Koch, revealed by means of the microscope, will eventually decide the question in doubtful cases. The disease was very widespread, and everywhere it had assumed considerable proportions. The cause was heredity and contagion. Its contagiousness had been accepted, then denied, for many centuries, but experimentation had finally proved its infectious character. The virulent agent enters the organism by means of the lymphatic vessels, and is slowly propagated. The lesions caused by the tubercular germs are at first localised and, as it were, isolated in the neighbouring tissues; then step by step they invade the organism; at the same time the oldest lesions undergo successive transformations: at first they are in the condition of crude tubercles, then they become caseous, purulent, and cretaceous.

The generalisation of the lesions is slow, and several stages in their progress may often be remarked in the same carcase. Sometimes the tubercles are localised, and the flesh has a good appearance. There is nothing to prove that this flesh is hurtful to the consumer, no accident from its use having yet been reported. When the tubercles are diffused throughout the body, and the lymphatic channels are more or less involved, it may then be asserted that the flesh is dangerous, or at least unhealthy as food. In Germany it is classed among inferior flesh, sold apart as diseased meat, and the public are therefore warned against it. At other times there are purulent or caseous centres, softened tubercles; and in this case the flesh should certainly be rejected, as also in those cases in which the disease is generalised, a large number of lymphatic glands are affected, or the carcase is in an emaciated condition, showing that nutrition had been profoundly altered during life. He proposed that paragraph *f*

(resolution 4) of the report be adopted, so far as the consumption of the flesh of tuberculous animals is concerned.

M. BOULEY: The question now before us constitutes one of the greatest difficulties met with in practice. It is asked what the meat inspector should do with the carcase of a tuberculous animal. But it is a fact that Tuberculosis is a dangerous disease for animals, which may contract it not only by the respiratory passages, but also by digestive ingestion, as well as by inoculation in any part of the body. He referred to the Toussaint experiments, the results of which were startling. The virulent element did not exist in the tuberculous lesions only, but was present in all the tissues. The juice of the flesh of a tuberculous animal, even after being heated to 50° or 60°—the ordinary temperature of roast beef—was virulent to the ox, pig, cat, rabbit, etc., when given in a virulent or small dose; large doses were not necessary. In putting the question to its ultimate consequences, it was not necessary to establish degrees in Tuberculosis, as when it exists it renders the consumption of the flesh dangerous. He was convinced that Tuberculosis, no matter the degree to which it had attained objectively, should cause the rejection of the flesh; at the most it should only be utilised when well cooked. Human Tuberculosis is certainly contagious; this is a fact known to everybody. Transmission takes place principally from husband to wife, and perhaps kissing is one of the conditions of contagion, through the medium of infected saliva. Tuberculosis is too widespread at present; it affects one-fifth of the population. He considered that it was in the butcher's department that one of the principal causes of the large number of cases of this disease was to be sought; it is probable that infection occurred through the digestive organs, as in the laboratory experiments. In conclusion, he proposed the following amendment:—

“Tuberculosis being recognised, experimentally, as a malady transmissible through the digestive organs and by inoculation, the Congress declares that there is every reason to reject for human consumption the flesh of tuberculous animals, no matter to what extent these may be affected, nor what the apparent quality of the meat may be.”

He was of opinion that the owners should be compensated, and thought butchers should establish mutual assurance societies.

VAN HERTSEN: This speaker explained what had been done in Belgium with regard to this disease, and especially the procedure he had adopted at the Brussels abattoir, when he had to deal with tuberculous cattle. These measures had been in operation for a very long time. In 1869 he had made them known in a work presented to the Veterinary Society of the Eure and Seine, and which had received the prize of that society. At that period he had arrived at almost the same conclusions as those in the report. At Brussels all emaciated cattle are confiscated, as well as the carcase of every animal showing numerous generalised tubercles undergoing softening, caseation, or suppuration—which lead to the supposition that the whole of

the organism is infected. When the lesions are serious and multiple, no matter what the quality of the meat may be, the carcase is always seized ; but when the tubercles are localised and in the crude state, and the flesh is satisfactory from a nutritive point of view, it is allowed to be consumed.

This practice had been established since 1869. With regard to the danger arising from the consumption of unboiled milk, he referred to a work he and Professor Degive had presented to the Belgium Academy of Medicine, and he dwelt more particularly upon the considerable frequency of tuberculous lesions in the udder of milch cows—a fact which he had made known in 1868, but which had not received any attention, not even from doctors or veterinary surgeons, and no measures had been devised ; the Academy had risen without discussing the important hygienic question he had submitted to it.

WIRTZ proposed an amendment to the resolution, to the effect that instead of “only a small portion of the body ; that the lymphatic glands show,” it should be “that a portion of the thoracic and abdominal viscera ; that the lymphatic glands which do not form part of these organs,” etc.

VAN HERTSEN was of opinion that Tuberculosis may have invaded the lymphatic system at the commencement of the disease. For his own part, he had noticed that the gland situated between the first and second rib was tuberculous in eight out of ten cases, and so far as meat inspection is concerned this gland was of very great importance, as he had found it to be tuberculous without requiring to see the other viscera. It was of great assistance in distinguishing Tuberculosis from Contagious Pleuro-pneumonia in quarters of meat when the pleura had been removed ; and for this reason he had designated it the inspector's gland.

LYDTIN maintained the necessity for retaining the proposition of the report. His views differed but little from those of Bouley, and he believed that with the proposed system a large number of tuberculous cattle would be rejected for consumption. Bouley would allow the sale of certain kinds of flesh, provided that this should be well-cooked, and he thought this would be sufficient. He agreed with Bouley that butchers should establish mutual assurance societies, and cattle-owners should be compensated. Without compensation they could not be sufficiently rigorous.

BOULEY wished to submit his amendment to the vote of the Congress, with a view to establishing the principle, which, in his opinion, should be most rigorous and absolute. With regard to regulations, that was an affair of competent administration.

ROSSIGNOL proposed an amendment which he subsequently withdrew in favour of that of Bouley. It was to the effect that “every animal killed for food, which shows lesions of Tuberculosis, should be seized as absolutely unfit for consumption. The carcase should be immediately rendered unfit for food by means of petroleum, and treated with sulphuric acid, or submitted to prolonged boiling in the cauldron of a knacker.”

VAN HERTSEN proposed to remove from paragraph *f* the words "that the lymphatic glands are yet exempt from every lesion of Tuberculosis."

The first part of the paragraph was accepted by twenty-five votes and fourteen abstentions. The second part obtained fifteen votes for and fourteen against, nine abstaining. As a consequence of this vote, the amendment of Wirtz and that of Van Hertsen were lost. Several members desired to put paragraph *g* to the vote.

ROSSIGNOL did not wish to be so rigorous as Lydtin ; he would not reject the milk of animals suspected of contamination ; consequently, he would have the last phrase in paragraph *g* suppressed.

BOULEY supported this proposal.

LYDTIN said it was only a recommendation ; he thought the milk should be boiled before it was consumed. He could not accept Rossignol's proposition.

The paragraph *g* thus modified was put to the vote and carried, with only five dissentients.

BOULEY demanded a vote on paragraph *h*, which he proposed to modify as follows :—" Compensation should be given for cattle in good condition, which, after slaughter for food, are found to be tuberculous."

ROSSIGNOL was in favour of compensation for animals in good condition intended only for food.

AERTS considered compensation as a just measure when slaughter was compulsory.

WEHENKEL said that as they were only discussing the seizure of meat unfit for consumption, and not of a measure which would wrong the owner in protecting the general welfare, he could not support the proposal to give compensation. It was a question of merchandise of bad quality, the use of which was to be prevented ; nothing more. The State should not intervene. Compensation should only be given in cases where a cattle-owner, for the general good, is deprived of the chance of curing his diseased animal (compulsory slaughter in order to prevent the spread of a disease), or when the legal sale of goods is interdicted for the general benefit ; but an indemnity ought not to be awarded when it is sought to prevent the unlawful sale of diseased meat.

LYDTIN took the same view as Wehenkel, as it was the one which was acted upon in the Grand Duchy of Baden.

As there was no further time to examine this subject, the discussion terminated, the following being a *résumé* of the resolutions adopted by the Congress with regard to it :—

In order that the flesh and viscera of the animal be allowed for consumption, the disease should only be in its earliest stage,

the lesions confined to a small portion of the body, the lymphatic glands yet free from alteration of a tuberculous character, the tuberculous centres not softened, the meat healthy and of the first quality, and the general nutrition of the animal at the time of slaughter leaving nothing to be desired.

The flesh of tuberculous animals intended for food should not be conveyed beyond the locality in which slaughter has been effected, nor offered for sale at the stall of an ordinary butcher.

Every quarter of meat, and any viscera showing tuberculous lesions or transformations, as well as the flesh of every animal in which signs of more advanced tubercular infection are found than those above-mentioned, should be rendered unsaleable by sprinkling them with petroleum, and finally buried, under the surveillance of the police. The extraction of the tallow by boiling, as well as the sale of the skin, may be permitted.

The inspection of every animal affected with Tuberculosis should be made by a veterinary surgeon, who alone can judge whether the flesh may be consumed.

The milk of animals affected with, or suspected of Tuberculosis, should not be used for the food of man, nor yet of certain animals, and its sale should be rigorously prohibited.

Editorial.

TO OUR PROFESSIONAL RECRUITS.

THE approaching opening of the Veterinary Schools for the winter term affords an opportunity, which we have hitherto seldom availed ourselves of, to address a few words of advice and encouragement to those about to commence their studies at these sources of initiatory knowledge, in the hope and earnest expectation of becoming members of the veterinary corporation when, as the result of their labours, they have acquired a sufficiency of learning to enable the Examiners of that body to certify as to their fitness to successfully practise the art and science of Veterinary Surgery and Medicine. And we venture to do this from the position we occupy as representing the profession—however unworthily and inefficiently—in public estimation, from the neutral ground we are happily enabled to retain in the midst of competition and conflicting interests, and from the many too short years of pleasurable toil and anxious care we have devoted to the advancement of this important branch of the healing art.

The students of to-day stand on a somewhat different platform to their predecessors of a half, or even a quarter, of a century ago. The immense

strides made in pathology and therapeutics, and perhaps in a lesser degree in physiology, histology, and surgery, as well as the increase in the collateral sciences which minister to these, entail a greater amount of study and labour than were required in days gone by; while the demands made upon the skill and resources of the practitioner are much more exacting than was the case within the memory of the present generation. But, to compensate for this, the period of study has been considerably lengthened, the means for acquiring the extended knowledge are proportionately increased, and new methods have been introduced for rendering its acquirement more easy. For the student of the present day a good general education is an absolute necessity, if he is to make the most of the opportunities offered him for laying a solid foundation in the principles of the profession which he seeks to enter. It is not long since this was not considered a very important matter, and if a student had some trifling acquaintance with the very elements of education, such as is now possessed by a schoolboy not in his teens, it was deemed quite sufficient to enable him to acquire all that was comprehended in the designation of veterinary surgeon. For several reasons this was unfortunate, as there is no doubt that it greatly retarded the prosperity of the profession; but from the circumstances of the times there was no help for it. The student of to-day should be educated to such an extent that he can readily comprehend the language of science, and he should even have some notion of the elements of physics, in order to understand the teachings of anatomy, physiology, and pathology; and inasmuch as the veterinary art is most difficult to practise, it demands powers of close observation and reasoning, no less than physical strength, tact, and an innate love of animals. Though it might be said of the veterinary surgeon as of the poet, that "he is born, not made;" yet it is possible to become an able practitioner by the exercise of close application and perseverance, without being endowed, perhaps, with all the natural qualities which are supposed to be necessary.

Next to a good general education, the student should be familiar with the handling and management of the domesticated animals, and if he has had the advantage of gaining this familiarity in his earlier years, all the better. In nothing does the practice of human differ more widely from veterinary medicine and surgery, than in the kind of patients dealt with.

The veterinary surgeon's patients comprise several species, very dissimilar in organization, size, disposition, and expression: creatures whose reasoning powers are still disputed, who cannot be reasoned with or soothed while under restraint or the infliction of pain, except by physical coercion, and whose resentment is dangerous to the surgeon when performing operations which are intended to relieve them from suffering; and who, being dumb, cannot assist in forming a diagnosis, or tell what they experience or where they suffer. Besides, he cannot command position in his surgical or medical cases, like his colleague, whose patients can tell, describe, obey, and resignedly endure, be placed in any necessary position, and, besides, are of his own species, and therefore perfectly familiar to him from his earliest days. There are other differences which operate adversely against the veterinary surgeon and in favour of the surgeon;

but all of these render the studies of the former more difficult. True, animal life is not so sacred or valuable as human life, but that does not render the study or the practice of veterinary surgery any easier ; on the contrary, it often renders it less satisfactory and more discouraging.

Each branch of medical science has its advantages and disadvantages, and each demands special training ; but of the two, to be a fully competent veterinary surgeon, and to successfully overcome all the difficulties which have to be encountered, requires more ability, resource, and perseverance than perhaps need be expected in the surgeon. It is much easier for the former to assume the rôle of the latter on an emergency, than for the surgeon to undertake the treatment of a sick or injured animal without any previous training. It is notorious that the most skilled surgeon or physician finds himself utterly lost when confronted with a case of lameness or internal disease in a horse or cow.

These remarks are made for the purpose of impressing upon veterinary students the urgent need there is for steady and continuous application to their studies, in order to gain a thorough knowledge of the first principles of animal medicine. The task before them is no light one, and the time in which it has to be accomplished is not a moment too long. Many students are only too ready to waste the earlier period of studentship, on the plea that there is no necessity for settling down seriously to work until later on ; hence, they defer the study of important subjects, or examine them in a perfunctory and intermittent manner, until too late to fully comprehend them ; or they “get them up” solely with the view of passing an examination in them, and then throwing them to one side. This is a grievous blunder. Every subject which enters into the curriculum of the schools is of more or less importance to the practitioner in his every-day work, and not one of them can be dispensed with or treated with indifference. A knowledge of them forms the veterinary surgeon’s stock-in-trade, his working capital ; and he is rich and competent in proportion to the amount of this capital he may possess. Students go to veterinary schools, not to prepare themselves merely to pass certain examinations, but to lay in a certain stock of knowledge which is to give them a start in a calling that, if they are to be worthy of it and adorn it, will make severe demands upon them so long as they pursue it. To obtain the diploma of the Royal College of Veterinary Surgeons is no guarantee of success in after life ; it is simply a passport to public favour—a certificate that the holder thereof knows sufficient of his business to be able to practise it satisfactorily. This is certainly valuable so far as it goes, but if the knowledge has only been picked up to obtain this testimony, and then wholly or partially thrown away, the success gained can have but an ephemeral existence, and the graduate will make no position for himself ; on the contrary, he will experience little else than dissatisfaction and discomfiture. So imbued do some students become with the notion that what they learn at college is merely to enable them to get through certain examinations, that when they have passed in some subjects they think no more about them, and in a few months afterwards, when casually questioned upon them, their minds are found to be a perfect blank with regard to them. We have had frequent and painful evidence

of this fact ; and we would earnestly solicit students to consider what it must lead to when they enter the world as duly qualified men, supposing they should be so unfortunate as to “get through” the Royal College, and figure in public as one of its members. Another fallacy is as to the value of lectures in enabling students to become good practitioners. They are useful, especially when the lecturer is master of his subject and can impart some of his knowledge to others ; but they are only partial means to an end, and the student in this, as in many other things, must look upon them as merely so many hints which he must store away in his memory, think over, and test and apply whenever and wherever he has the opportunity. A student cannot become a real veterinary surgeon by sitting on a bench listening to lectures ; his knowledge and skill have to be applied, and this application demands head and hands—in fact, special cultivation of all the faculties ; and the best cultivator of these, by far, is the student himself. There is no royal road to the knowledge a veterinary surgeon should possess ; it is to be attained by patient plodding along, looking neither to the right nor the left, but ever gaining ground by fixing the gaze forward and upward, surmounting all obstacles, and reaching the goal on the summit at last, conscious of having surveyed and indelibly imprinted on his mind every step of the toilsome journey. “A man is relieved and gay when he has put his heart into his work and done his best,” truly says Emerson. Economy of time is an essential to successful study, and it should ever be kept in view. The late Premier of England, Mr. Gladstone, insists upon its observance : “Thrift of time,” he repeats, “will repay you in after life with a usury of profit beyond your most sanguine dreams” ; and with this and steady application, even what may be designated a dull student has not much need to be apprehensive of failure. No one can deny the justness of Bulwer Lytton’s statement that “what men want is not talent, it is purpose—in other words, not the power to achieve, but the will to labour” ; while, with regard to failure, the words of the same writer, which he puts into the mouth of one of his best dramatic characters, Richelieu, in his address to his page, should be remembered,—

“In the lexicon of youth, which Fate reserves
For a bright manhood, there is no such word
As Fail !”

Possessed of a good general education, health and strength, determined to acquire knowledge and make it his own—a part of his being—and conducting himself as befits one who aspires to become a member of a profession which has much to commend it, and which has a good future before, the student of to-day has opportunities for distinguishing himself which many of those who have risen to eminence did not have. Upon themselves largely depends their success—

“For sluggard’s brow the laurel never grows ;”

and if they desire to win the laurel, they must work and deserve it.

“QUARTER ILL,” OR “BLACK LEG.”*

France.—Chaubert described the disease last century as an anthracoid disease. *Germany.*—Bollinger distinguishes the disease from Anthrax, and regards it as specific, due to a mobile organism (*Spaltpilze*) of a most dangerous character; while Feser considers it a septic infective disease, and describes the micro-organism. They propose the term “*Emphysema Infectiosum*” for the disease.

The symptoms obtained experimentally upon rodents are pretty constant, and very similar to those described by others in cattle.

The period which elapses between inoculation and death varies within rather wide limits, viz., from twelve hours in the most severe cases to three, or even four, days. This depends upon two factors: (a) the virulence of the matter used for inoculation; (b) the susceptibility of the animal to infection, or its constitutional power of resistance. After inoculation, the rectal temperature rises to 103° or 104° F., and falls to 90° before death, which usually takes place without any restlessness or convulsive struggles. The period that elapses between infection and death is frequently proportionate to the quantity of the virus injected, whereas both in Anthrax and in Davaine’s Septicæmia in rodents, the quantity used in inoculation—within very wide limits—is practically without effect on the period of incubation.

Experiment.—Four guinea-pigs—A, B, C, and D—received by injection into the crural muscles, with a Pravaz syringe, each five drops of the expressed muscle serum of an animal recently dead, respectively of the following dilutions, viz., A, $\frac{1}{2}$; B, $\frac{1}{10}$; C, $\frac{1}{100}$; and D, $\frac{1}{1000}$. They died in the following manner:—A succumbed within (*i.e.*, was found dead in) eight hours; B, at that time not appreciably affected, twenty-five hours after injection was in a state of collapse, and was found dead the following morning; C, then unaffected, was found dead on the third morning—all three showing typical symptoms; whilst D survived, and was ultimately killed. The result here—viz., $\frac{1}{20}$ th of a drop proved in C fatally infective—is about the limit of infectivity which I have found the virus of this disease to possess.

The virus injected into the muscular tissue of the upper and lower limbs is most certainly infective, and the muscular tissue is that principally affected. The microbes are found in the serous infiltration and in the sarcolemma of the muscle. Emphysema is always present, but not so extensively in winter as in summer; thus showing the effect of season in modifying the character of diseases of this class.

Sometimes Peritonitis is present, with serous exudation containing the organism, and is infective. The spleen is always normal, and contains no microphytes; neither does the liver nor bile. Nor is this fluid infective, although M. Arloing says it is the most virulent of the fluids of the body, inoculation with a few drops of it being invariably fatal in twenty-four hours. Further, the bile frequently inoculated into cultivating fluids, and kept in vacuo, invariably remained sterile. The blood from the heart, examined shortly after death, is never materially altered, the red corpuscles preserving their character. The lungs are healthy, except in cases where the injection has been made in an upper (fore) limb, when they may be hyperæmic. Microscopically, the small blood-vessels, arterioles, and veinlets in the subcutaneous tissue and muscle may be seen ruptured; this is best observed in specimens hardened in strong alcohol (90 per cent.). It appears that stasis

* A Résumé of some experiments published in the 13th Annual Report of the Medical Officer, Local Government Board, on the *Ætiology of “Charbon Symptomatique,”* and its relation to other allied diseases, by G. F. Dowdeswell, M.A. (Cantab.), F.L.S., F.C.S., etc.

is occasioned by injury to the vessel walls, through the intense inflammation that is set up, and the rupture occurs as a consequence.

The pathological appearances and cause of death are explained as follows:—Inflammation is excited in the locality by the injection of the “infective” material, resulting in stasis; this is followed by atrophy and necrosis of the adjacent tissues, rapidly spreading to distant parts of the organism. This appears naturally to account for the features of this affection, quite consistently with the secondary rôle played by the micro-organisms, which here act either by generally deoxydising the blood, or, as shown by Toussaint, by mechanically plugging the capillaries.

Infectivity of the blood and other fluids—The power of the blood to infect cultivated fluids and animals is very uncertain. In numerous experiments with the blood taken shortly after death directly from the heart, a very few only were successful; but when an interval of twenty-four hours was allowed to elapse (especially if the dead animal be placed in an incubator), it is found more infective. However, the serum from the muscle and the œdematous fluid were invariably infective, even in such small doses as three drops (0.2 c.mn.), injected directly into the muscular tissue; but smaller quantities were uncertain, death only occurring after a proportionately lengthened period. If injected into the subcutaneous tissue only, infection invariably failed; although M. Arloing states the injection into this tissue confers immunity from subsequent infection. Mr. Dowdeswell cannot, however, endorse this statement.

Another point of note is the fact that in a series of experiments extending over two months, and comprising upwards of twenty-four successive inoculations, he found there was no constant or progressive increase or diminution in the virulence of the infection, as has been said to be the case in transmitting it through rodents.

The action of the virus varied, but it was invariably found to be directly proportionate to the severity of the case from which it was taken, and this chiefly depended on the animal infected; so that by inoculating two or more animals at the same time, and selecting the most severe cases to furnish the virus—not always that which succumbed first—the infectivity could be regulated. In the very last inoculations made, the virus was fully as active as ever, though a short time previously it had been in some cases rather diminished.

Toxical properties of the flesh of infected animals.—In the case of rodents, it was found that the flesh of infected animals—*i.e.*, the tissues of the parts affected—was distinctly toxical to others of the same species, when eaten.

The micro-organisms which occur in the tissues, and their artificial cultivation.—Few organisms can be found in the blood immediately after death, but they increase afterwards at a rate proportionate to the temperature. Their form is that of a large bacillus, regularly cylindrical, width from 0.0008—0.0013 mm—distinctly larger than the B. Anthracis in a similar media; in length the single rods are from 0.004 to 0.010 mm. In fresh preparations—more commonly than in those dried and stained—two or three of these segments are sometimes found united together; but not more than that, even twenty-four hours after death, in animals kept at the temperature of the external air. When, however, they are placed in the incubator for a night after death, then several clavate and ovoid or fusiform cells develop and form spores, similar to those that occur in the serous infiltration. According to Mr. Dowdeswell's observation, the microphytes never develop in the blood, excepting when so placed in the incubator—a feature which alone would serve to distinguish this disease from Anthrax. The numbers in which they are present, depend simply upon the time which has elapsed and the temperature.

They are found in large numbers in the serous infiltration around the site of injection, and to a considerable distance throughout the muscular and connective tissue, and vary in size and form—cylindrical cells similar to those found in the blood, bacterial or coccus-like forms undergoing fission, and, in the connective tissue and serous exudate, clavate and fusiform or ovoid forms, with all gradations intermediate between them. The microbes found in the muscular tissue resemble those found in the blood, viz., large, broad, cylindrical rods, generally lying parallel to the direction of the muscular fibre.

The fusiform or ovoid bodies sometimes reach a diameter of 0·0025 mm., *i.e.*, three times the size of the B. Anthracis; their length varies from little more than half as much as their diameter. The central part of the corpuscle, ovoid in form, is unstained by the aniline dyes, and is very highly refractive. These are probably resting spores formed in the last phase of the life cycle of the organism, whilst the corpuscles observed in the cylindrical rods, or at their ends, may be spores of the negative kind.

The best medium for cultivation was found to be neutral veal bouillon with the addition of 4 per cent. of glycerine, and an incubator kept at 38° C.

The action of the aromatic products of putrefaction on the virus.—Neither phenylpropionic nor phenylactic acid, nor their potash salts, even when added to the virus in as large proportions as possible, and allowed to act upon it for one or two days, were capable of materially or constantly modifying its activity.

Upon the attenuation of the virus, and methods of conferring immunity from infection.—Mr. Dowdeswell finishes by saying:—“Considering the prevalence of this disease amongst sheep and cattle in this country and the colonies, it appears most desirable that the methods of obtaining protective inoculation should be completely investigated. The admirable work of MM. Arloing, Cornevin, and Thomas, confirmed, in most essential points, by my own limited experiments, must be regarded as showing that this is practicable by various methods, of which that by dilution of the virus appears to be most suitable for general practice. The methods by heat, the action of antiseptics, cutaneous or other injections, are more difficult and complicated; they require special appliances or manipulative skill, and could not be so generally practised.”

Distinction between Symptomatic Charbon and Anthrax.—The experiments were confined to guinea-pigs; therefore the remarks refer only to these animals:—

1. The length of time which elapses between infection and death in Anthrax is forty hours or more, whereas in S. Charbon it usually takes place within twenty-four, sometimes thirty, and, in exceptional cases, it is prolonged to forty hours.

2. In Anthrax the blood teems with immobile bacilli, having a constant form and size, and it is essentially the seat and source of infection; whereas in S. Charbon these short “primitive” segments are rarely found, and their ends are rounded; they differ also in width.

3. The spleen is never affected, nor are the organisms found in its blood in S. Charbon. The reverse is the case in Anthrax.

4. In Anthrax the red corpuscles lose their individuality, their distinctive contours, and flow together; but in S. Charbon they remain unaltered.

5. In Anthrax the white corpuscles are increased in number, but this is not a constant characteristic in S. Charbon.

6. In Anthrax the blood is invariably fatally infective, even in the 100-millionth of a drop, whereas in S. Charbon it is only exceptionally infective in any moderate quantity, and the serous infiltration, which is the most virulent, is seldom actively infective in much less than one drop.

7. The *Bacillus Anthracis* is essentially aërobic, assimilating oxygen with avidity, and germinates in a variety of nutrient fluids, and it is virulent in endless succession. The organism of *S. Charbon*, on the other hand, is cultivated more readily *in vacuo*, and the cultivations are with difficulty infective to living animals, and not at all in minimal quantities or in successive generations.

8. The *B. Anthracis* may be found in all the organs and tissues of the body, whereas in the other affection it is not so.

Mr. Dowdeswell finishes his paper by describing the *Relations of Symptomatic Charbon to Pasteur's Septichæmia*, and concludes : (1) That *S. Charbon*, though totally distinct from Anthrax, is very closely related to the so-called Pasteur's *Septichæmia*, and appears to be a mere modification or variety of the same disease ; (2). It is not yet conclusively shown to be truly a specific micro-parasitical affection in which the microbe present constitutes the actual contagium.

GEO. A. BANHAM, F.R.C.V.S.

BURSÆ MUCOSÆ.

BY PROFESSOR F. EICHBAUM, OF GIESSEN.

(Continued from page 202.)

V.—POSTERIOR EXTREMITIES.

In the Region of the Hips.

Bursa mucosa subcutanea on the Trochanter minor externus (Unteren umdreher). It has been seen in one instance, the horse being the subject of Spavin. It was very large.

Bursa mucosa subfascialis under the fascia covering the muscle of the croup and the Trochanter major, between the flattened tendon of the *M. gluteus* (externus, *Percivall*) (maximus) and the fleshy part of the anterior head of the *M. biceps femoris*. It is about the size of a hen's egg, and is frequently pierced by tendinous fibres ; tolerably constant.

Bursa mucosa subtendinosæ under the insertion tendon of the superficial gluteus (*Gluteus externus*, *Percivall*) (*M. gluteus maximus*) on the Trochanter minor externus; not constant—*Bursa Trochanterica prof. sine glutæi maximi*.

Bursa mucosa under the insertion tendon of the middle gluteus (*M. gluteus medius*, or *Gluteus maximus* of *Percivall*)—*Bursa glutæi medii*. Is a large sac covering the whole of the smooth part of the infero-anterior part of the Trochanter major (Mitteleren umdreher) under the insertion tendon of the middle gluteus. Traumatic inflammation of this bursa gives rise to hip-lameness (*cfr.* Dieckerhoff, l. c. s. 178). It corresponds to the *Bursa glutæi medii*, and not, as Franck says (l. c. s. 446), to the *Bursa glutæi minimi* of man.

Bursa mucosa under the insertion of the deep gluteal (*M. glutæus minimi* or *gluteus internus* of *Percivall*)—*Bursa glutæi minimi*. It is not always present, but when it is it is situated under the above-mentioned tendon and on the internal surface of the anterior part of the Trochanter major. It is oval in shape (4 ctm. diameter), and its walls are pierced by numerous vessels which grow through into the bone beneath.

Bursa mucosa about the size of a walnut between the internal surface of the crest of the Trochanter major and the posterior border of the deep gluteus muscle. It is frequently met with, and is usually surrounded by fat.

Bursa mucosa under the superior (external) origin of the *M. rectus femoris*, on the ilium immediately over the hip-joint. It is always present, and about the size of a walnut.

Bursa vaginalis under the tendon of the M. obturator internus—*B. tendinis obturatoris interni*. It commences about 3 ctm. anterior to where the muscle passes over the bone at the posterior ischiatic notch (*Incisura ischiadica minor*); it there surrounds the tendon as a sheath, is placed on the internal surface of the tendon as it passes over the notch, and ends 3·4 ctm. under the same.

Bursa mucosa on the tuberosity of the ischium—*Bursa tuberis ischii*—between this and the superior head of the M. semitendinosus (*Rotator tibialis, Percivall*). It is usually present, and about the size of a walnut. According to Renner, this bursa is produced by the action of Stringhalt, being the result of the excessive friction of the semitendinosus over the bone at this point (*cf.* Dieckerhoff, l. c. s. 162). As this bursa was invariably present in our examinations it seems very doubtful whether Stringhalt action alone is the cause of this bursa being present.

Bursa mucosa between the posterior surface of the inferior trochanter and the tendinous branch of the M. biceps femoris, which is inserted into it. It is about the size of a walnut, is sometimes pierced by fibrous bands, and is usually present.

In the Region of the Patella.

ANTERIOR SURFACE.—*Bursa mucosa subcutanea* on the anterior part of the patella—*Bursa mucosa præpatellaris sine aponeurotica*. This bursa was only present in about half the number of subjects examined. It is placed on the most prominent part of the anterior part of the patella, viz., its superior part, inclined to the external border. It varies in size from a bean to a walnut.

Bursa mucosa subtendinosa on the antero-superior part of the patella, under the insertion of the M. rectus femoris. It is not constant, and usually about the size of a walnut. It corresponds to the *Bursa mucosa patellaris profunda s. infrapatellaris s. subtendinosa* of man.

Bursa mucosa between the insertion of M. vastus externus and the external lateral ligament of the patella. It is about the size of a walnut and is very frequently present.

Bursa mucosa more anteriorly placed than the last-mentioned, under the insertion of the anterior portion of the M. triceps femoris (M. biceps femoris). Almost constantly found, and about the size of a walnut; sometimes, however, instead of one there are two or three smaller ones.

Bursa mucosa between the internal border of the patella and the insertion of the M. vastus internus. Its size is that of a hazel-nut, and it frequently has tendinous fibres running across it.

Bursa mucosa under the central straight ligament of the patella, where it joins the tibia—*Bursa subpatellaris s. infragenualis* of man. It is tolerably extensive, and fills the fossa on the supro-anterior part of the tibia. The anterior wall is united to the ligament, and the superior and lateral walls are covered with fat.

Finally, we would mention a *cul-de-sac* extending from the capsule of the femero-tibial articulation; it corresponds to the Recessus superior of the knee-joint of man, and may be looked upon as a *Bursa synovialis*. It is placed above the patella, between the M. cruralis and the inferior end of the anterior part of the femur, and passes—in the horse—without any marked boundary into the joint capsule. I was only fortunate enough in one instance to detect any analogue of the rare *Bursa supra-genualis s. subcruralis* of man in the horse. It is situated in the depression between the condyles of the femur as an extension of the patella joint capsule; it is about the size of a hazel-nut, and unites with the joint capsule itself by means of an opening about the size of a pea.

LATERAL SURFACE.—*Bursa synovialis* under the origin of the tendinous portion of the Flexor metatarsi and the Extensor pedis. The bursa is about 14 ctm. long, and is placed in the external fossa on the anterior part of the superior head of the tibia. It commences where the above-named muscles arise on the outer condyle of the femur, anterior to the external lateral ligament of the femero-tibial articulation, and is usually in communication with the superior and inferior division of the joint capsule by wide openings at this part. The bursa then passes into the above-named fossa on the tibia, and here lies between the muscular portion of the flexor of the metatarsus (*M. tibialis anticus*) on the one side, and the tendinous portion of the Flexor metatarsi and Extensor pedis on the other, and is united to both by loose connective tissue. The anterior wall is united to the fascia.

That part of the bursa which is in relation with the femero tibial articulation is frequently divided into external and internal (lateral and medial) spaces by a semilunar membranous septum, which takes its origin from the border of the semilunar articular cartilages, and sometimes extends to the inferior border of the fossa covered with cartilage, on the superior border of the tibia.

Bursa synovialis under the tendon of the *M. popliteus*—*Bursa synovialis poplitea* of man. It is a projection of the joint capsule, covered by the tendon, on the borders of which it is inserted. It communicates by an opening with the superior part of the joint-space. The bursa commences with the tendon, and extends to the level with the external tuberosity on the tibia.

Bursa mucosa under the external lateral ligament of the femero-tibial articulation. One, about the size of a walnut, is situated under the superior half of the ligament, between it and the tendon of the *M. popliteus*; the other is under the lower half of the ligament between this and the head of the fibula, and it is smaller than the former. In no instance could any communication be detected between either of these and the joint; therefore we venture to suggest that Franck (l. c. s. 333) has confounded this with the bursa under the internal (medial) lateral ligament.

INTERNAL (medial) SURFACE.—*Bursa mucosa* under the inferior part of the internal lateral ligament of the femero-tibial articulation. This oval-shaped bursa commences at the superior border of the internal semilunar intermediary cartilage; then it passes downwards under the ligament, over the joint and border of tibia, and ends immediately before the insertion of the lateral ligament. In length it is about 3 or 4 ctm.; its breadth corresponds to that of the ligament. It communicates with the inferior part of the joint capsule by an opening from 1.5-2.0 ctm. broad.

Bursa mucosa about the size of a bean, between the crucial ligaments. It communicates with the synovial capsule by a small opening on its anterior border.

Bursa mucosa under the insertion tendon of the *M. semitendinosus* (*Rotators tibialis*), on the crest of the tibia—*Bursa genualis* of man. It is constantly present, and round in shape, with a diameter of 2.5-3.0 ctm.

In the Region of the Tarsus.

Subcutaneous and Subfascial Mucous Bursæ.

Bursa mucosa subcutanea over the *Tuberositas calcanei*. Not constant, but very frequently present. It commences about the insertion of the tendon Achilles, and passes downwards over the *perforatus* tendon. It is usually oval in shape, the long axis being 4-5 ctm., its short 3-4 ctm.

Bursa mucosa subcutanea on the *Malleolus externus* tibia, is frequently present, and varies in size. There is often another bursa at this spot, under the superficial fascia.

Bursa mucosa subcutanea over the Os cuboïdeum, is tolerably often found, and about the size of a walnut.

There is often a subcutaneous mucous bursa on the internal surface of the hock, over the Malleolus internus tibiæ, and in one instance we detected a small bursa at the posterior border of the Os cuneiform magnum (Os naviculare).

Bursa mucosa subfascialis on the anterior surface of the inferior third of the tibia, under the tibial fascia. It has an elongated form, and commences on the anterior—inclined to inner—border of the tibia, under the superior transverse (muscle) ligament, and passes in an oblique direction from above and inwards to below and outwards over the Flexor metatarsi, with which its posterior wall is united; it ends on the anterior surface of the same just before it divides into its insertion branches. The bursa is from 8-10 ctm. long. Sometimes another subfascial bursa is found on the external half of the anterior surface of the tibia, about 4-5 ctm. long, partly covering the Extensor pedis.

Subtendinous Bursa and Tendon Sheaths.

EXTERNAL (*lateral*) SURFACE.—*Tendon sheath of the lateral extensor of the phalanges* (Peroneus, *Percivall*). It commences, *prætor propter*, 2-4 ctm. above the external malleolus, covers and bridges over the channel through which the tendon passes, and loosely envelopes the tendon itself. It is strengthened externally by the muscle, ligaments, and fascia. It ends on the superior part of the metatarsus, about 1 ctm. below the inferior transverse ligament. This thin transparent sheath—which is tolerably firmly united to the long lateral ligament of the hock-joint internally, and the tibial aponeurosi externally—possesses a “mesotenon” about the width of two or three fingers, which takes its origin at the posterior border of the channel.

ANTERIOR SURFACE.—A little to the outside we find the tendon sheath of the anterior extensor of the phalanges (Extensor pedis, *Percivall*). It commences at the external malleolus, passes downwards over the anterior surface of the hock-joint, and ends just before the union of the peroneus with the Extensor pedis. This sheath is strengthened by the superior transverse, middle loop, and inferior transverse muscle ligaments, with which it is loosely united. It possesses a broad “mesotenon,” about 3 ctm. at its widest part, which takes its origin from the fibrous layer of the capsule of the tibio-tarsal articulation; and in its inferior half covers both surfaces of the Extensor pedis accessorius.

Internally to this bursa we find a *Bursa vaginalis* on the muscular portion of the Flexor metatarsi (M. tibialis anticus). It takes its origin at about the level of the malleolus, and is situated between the fleshy and tendinous portions of the Flexor metatarsi, so that its anterior wall is in apposition with the posterior surface of the tendinous portion, and the posterior wall with the anterior surface of the muscular portion. At the lower part of the last-named portion the bursa passes round to that surface next the joint, and then accompanies the insertion branches; so that the internal (medial) branch is covered downwards from 1 ctm. on its external (anterior) surface, and 2 ctm. on its internal (posterior) surface; and the anterior (straight) branch to the same extent on its internal (posterior) surface, and ceases about the upper border of the Os cuneiform magnum (Os naviculare), and the same on the external (anterior) surface.

INTERNAL (*medialen*) SURFACE.—*Bursa mucosa* under the internal branch of the muscular portion of the Flexor metatarsi. A bursa which, according to Dieckerhoff, is of great practical importance in Spavin. It is irregularly circular in shape; its internal wall is in apposition with the Ossa cuneiformi magnum, medium, and parvum, and is firmly united to the

ligaments of the hock-joint found here by connective tissue; its external wall is loosely connected with the aponeurotic covering, which contains the internal branch of the muscular portion of the Flexor metatarsi, running obliquely from its origin on the anterior surface of the tibio-tarsal articulation to the Os cuneiformi parvum and head of the internal small metatarsal bones respectively.

Tendon sheath of the oblique flexor of the phalanges (Flexor pedis accessorius, *Percivall*), is about 30-35 ctm. long. It begins about the centre of the tibia, and is situated at this spot between the belly of the deep flexor of the phalanges (Flexor pedis) and the tendon of the accessorius; it takes its course downwards through the groove in the internal malleolus and the internal ligaments on the posterior border of the astragalus and cuneiform bones; as it passes the cuneiform bones it is in relation with the last-mentioned bursa. It then passes the posterior border of the internal small metatarsal bone, where it lies between the bone and the sheath of the Flexor pedis, and remains as a separate sheath along the tendon until it joins the deep flexor. The sheath possesses at its superior half a "mesotenon" about 2 ctm. broad, and is externally strengthened by the aponeurotic fascia covering the tibia and hock-joint.

POSTERIOR SURFACE.—*Bursa vaginalis* under the tendon of the superficial flexor of the phalanges (Flexor pedis perforatus, or tendon of the Gastrocnemius internus, *Percivall*). It is a sheath whose posterior wall is united to the anterior (internal) surface of the tendon, where it forms a cap for the point of the calcis, and its anterior wall is related to the tendon of the M. gastrocnemii externus and posterior surface of the calcaneus. It usually commences where the tendon of the superficial flexor passes round to the posterior surface of the tendon of Zwillings' muscle and begins to expand. It then passes between both tendons, gradually widening as it approaches the point of the calcis, and then passes downwards, gradually narrowing to about the centre of the calcaneus. Laterally it projects over the borders of the perforatus tendon, the gastrocnemii tendons, and the tuberosity of the calcis; it communicates by an opening on its external sides with the following Bursa calcanei. The lateral parts of the bursa are covered by the tibial aponeurosis.

Bursa mucosa situated between the cartilaginous joint of the calcis and the insertion of the M. gastrocnemii (Gastrocnemius externus, *Percivall*)—Bursa calcanei of man. It is always present, and is about 4 ctm. long, and from 2.5-3 ctm. broad.

Tendon sheath of the deep flexor of the phalanges (Flexor pedis perforans, *Percivall*), commences, *præ. prop.*, the width of three fingers above the external malleolus, passes downwards over the posterior surface of the tibia and capsule of the tibio-tarsal articulation, with which it sometimes communicates (see Franck, l.c. p. 338), and is here strengthened by a fibro-cartilaginous plate; it then takes its course over the posterior surface of the hock-joint, where it is intimately united with the ligaments under it, and passes in between the perforans and the superior suspensory ligament; it terminates just before the oblique flexor tendon joins it, *i.e.*, about 5 ctm. below the lower row of tarsal bones. As the sheath passes the hock it is bound down and strengthened by the fibrous expansion of aponeurosis (annular ligament) at this part (Ligament. tarsi plantare), whilst superiorly and inferiorly of this ligament it projects. The sheath has a very broad "mesotenon" (6-8 ctm. broad) at the posterior part of the hock; it takes its origin from the external wall of the sheath, in the region of the internal border of the annular ligament, which it lines.

Finally, it is perhaps worth mentioning other *Bursæ synoviales*, the most important of which is situated on the anterior surface of the hock, between

the astragalus and cuneiform magnum, and external anterior ligament of the hock; also smaller ones between the metatarsal bone and cuneiform medium also, between the cuneiform magnum and medium. These project in spaces between the various ligaments at these parts.

Reviews.

VETERINARY PHARMACOLOGY AND THERAPEUTICS. By J. BRODIE GRESSWELL, M.R.C.V.S. (London: H. K. Lewis. 1885.)

PRACTICAL VETERINARY REMEDIES. By G. S. HEATLEY, M.R.C.V.S. (Edinburgh: Maclachlan and Stewart. 1885.)

Mr. Gresswell, in his second literary venture, has accomplished as useful and, in its way, as complete a task as in the "Manual of the Theory and Practice of Equine Medicine," to which, it may be said, this is a complement. Within the compass of 179 pages, a lucid and most excellent description is given of all the remedies comprised in veterinary pharmacology, for we cannot discover a noteworthy omission. The descriptions of the drugs are brief, yet sufficient, and clear enough to be understood by an average student; while the formulæ appear to be good, and well adapted to meet the requirements of the cases they are designed for. Many of these, we are told, were those of the author's father, the late Mr. D. Gresswell, of Louth, whose name and long and wide experience are a solid guarantee of their value. All the newer remedies are included—even to *Cuca* or *Coca*, and its alkaloid, *Cocaine*. Within the limited space of twenty-eight pages is given a therapeutic index of diseases and symptoms, which will be found very useful to the busy practitioner, affording, as it does, at a glance, the appropriate remedies for each of the enumerated diseases. Altogether, we have no more complete or handy book on the subject than this; it is almost small enough to be carried in the waistcoat pocket, and yet it contains more practical matter than any other work of the kind with which we are acquainted. For the student and the practitioner, it embraces everything they require, and a hearty welcome is certain to be accorded to it when its merits become known. It does author and publisher great credit, and it is to be hoped they will receive the encouragement they deserve.

Mr. Heatley's "Practical Veterinary Remedies" is, we presume, intended for the general public, and if so, it may to some extent fulfil the intention. At any rate, we cannot discover in what respect it can prove useful to veterinary surgeons, as, unlike the last noticed work, it contains nothing that the practitioner has need of, or that is not to be found in the older works on veterinary medicine. It is, therefore, beyond the scope of this Journal to notice it, further than to announce its publication and its aim. There are a few mistakes here and there, which are of no great importance, so far as amateurs are concerned; but we cannot understand why "musty hay" should be entered among veterinary remedies.

THE DISEASES OF POULTRY. By J. WOODROFFE HILL, F.R.C.V.S.
(London: Office of "Poultry.")

We believe this is the first work on poultry in this country written by a veterinary surgeon; and though it is only intended for amateurs, yet it merits consideration from members of the veterinary profession, as it deals with a subject which is not only interesting to the comparative pathologist, but should receive attention because of its importance. Poultry rearing and feeding is a valuable industry, though not recognised as such to any considerable extent in these islands, unfortunately; and the losses from disease are sometimes quite serious. In order to assist the amateur in averting or curing the different affections to which fowls are subject, Mr. Hill has given a plain description of these causes of loss, with the treatment most likely to prove successful in overcoming them; and that this will be the case, his own experience may be relied on as sufficient evidence. The book is of a convenient size, and contains about 170 pages. It concludes with a section on *post-mortem* examinations of fowls, which should be useful to veterinary surgeons. A short sketch of the anatomy of a fowl might have been introduced with advantage.—G. W. S.

INDIAN STOCK-OWNER'S MANUAL. Translated into Tamil. By JAMES MILLS, M.R.C.V.S., Army Veterinary Department. (Madras: Printed at the National Press.)

The Indian Government is at last rousing up to its duty to the agriculturists of India, and is endeavouring to assist them in keeping their flocks and herds free from disease, and teaching them how to cure them when they are ill. Veterinary and agricultural schools are established in the different Presidencies, and in each of these there is a member of our profession to instruct in veterinary matters. These instructors are drawn from the Army Veterinary Department, and some of them have greatly distinguished themselves in this direction by their teaching and writings. Among the foremost of these is the author of the above work, who, in addition to being lecturer on zoology and veterinary medicine and surgery in the Madras Agricultural College, is also Inspector of Cattle Diseases in that Presidency. The manual which he has prepared is in the Tamil language, and is intended for the cattle-owners of Southern India, whose stock suffer from almost every conceivable disease. A portion of the work had already appeared in 1883, as "Plain Hints on the Diseases of Cattle in India." For the purpose, nothing could be better than the plan and style which the author has adopted, and if those for whom the book is written will only follow out the directions so clearly given, they and their country must greatly benefit. The most serious difficulty to be encountered in the suppression of contagious diseases of the most fatal kind, is the religious aversion of the natives to destroy animals, and this Mr. Mills has done his best to overcome. Another drawback is their objection to cutting up the bodies of dead animals, which is a great hindrance to making autopsies; and here, again, he points out the utility of the practice, and how religious scruples may be respected while *post-mortem* examinations are made.

Proceedings of Veterinary Medical Societies, &c.**YORKSHIRE VETERINARY MEDICAL SOCIETY.**

THE summer quarterly meeting was held at the Queen's Hotel, Leeds, on the 31st July; the President, Mr. J. E. Scriven, in the chair.

The SECRETARY introduced the subject of the desirability of repealing clause 9 of the Supplementary Charter.

Mr. FLETCHER and Mr. SMITH said the clause was clearly an infringement of the rights of the members of the College, and Mr. Smith moved a resolution, "That, in the opinion of this meeting, Clause 9 of the Supplementary Charter should be repealed."

Mr. PETER WALKER seconded, and thought the action of the clause would prevent numbers of excellent and worthy members of the profession aspiring to higher veterinary honours.

Messrs. AXE, SCHOFIELD, and PICKERING thought the institution of the degree a step in the right direction, but the examination ought to be more practical for the older and more respectable members.

The HON. SECRETARY thought that, the clause being instituted by the Council in order to raise the social status of the profession, it would be a retrograde movement to repeal the clause without any trial as to its working, and he moved, as an amendment, "that no action be taken in the matter by this Society."

Mr. A. W. BRIGGS seconded the amendment, although he had no particular feeling in the matter.

Mr. CARTER was of opinion the privileges of members had been tampered with; still he thought to repeal the clause would appear like a retrograde movement.

Mr. SMITH's proposition was carried by twelve votes to two.

Mr. GREENHALGH described a remarkable specimen of

THE ECHINOCOCCUS VETERINORUM.

The subject of the case I am about to relate was a red and white cross-bred aged cow, the property of a client of mine at Armley near Leeds, and I was called in first to see her on the 4th of May in this year. Considering what occurred subsequently it would be valuable were we acquainted with her early history; but that, I regret to say, I am unable to relate fully. However, she was purchased from a farmer as a new-calven beast, eight weeks prior to May 4th, in the neighbourhood of Masham, and to all appearance, as far as I can learn, was at that time a good, healthy, sound animal, in fair condition. After her arrival at Armley, the cowman noticed that her faeces were unusually thin, and this state of affairs gradually became worse.

Slowly, but surely, the beast lost her condition, the faeces became more watery, and from giving a good quantity of milk, which she did at first, it was now reduced to about a pint at each end of the day. The owner had applied all the ordinary remedies to check the diarrhoea known to him and his neighbouring cowkeepers; and I can assure you the quantity of nostrums poured down that poor animal's throat had been no trifle. I examined her; the only observable abnormal appearance was an enlargement on the right side of the abdominal cavity; otherwise there were no outward indications of internal disorder. She had a good dew on her nose, her horns and ears were natural to the touch, and she ruminated and ate fairly well, but of course there was the diarrhoea and emaciation. My treatment consisted, first, in administering a strong saline drench, which was followed up afterwards daily by astringents—such as catechu, opium, and eventually tannic acid. For a day or two she seemed to rally under the treatment by

the mild astringents ; but on the 12th she ceased ruminating, and her appetite was gone ; by the 15th she had become extremely emaciated. I persuaded the owner to have her killed, and arranged to be present on the following day to see her slaughtered, and to make a *post-mortem* examination to discover the cause of the persistent diarrhœa. When she was opened, I was astounded. The butcher vowed she had a calf in her, and the owner looked at me as much as to say "This is a job if she has not calved at all."

However, that doubt was soon set at rest, for the "calf" turned out to be the liver, or what had once been that organ, but enlarged to such a monstrous size as I had certainly never seen before, and for many good reasons never wish to behold again.

It was attached by strong fibrous bands to the peritoneum, and when detached from the abdominal cavity and placed on the scales, it turned them at eleven stones three pounds.

I candidly admit that I was mystified, and unable to account satisfactorily to myself for such a state of things ; two or three veterinary surgeons saw the "liver," as did also several medical men of this town, but none could describe what had been and what was the cause of this enlargement.

There was not five pounds of real hepatic substance in the whole organ. It consisted almost entirely of large cysts, with thick walls, containing numerous smaller cysts, and all filled with a clear, straw-coloured fluid. The result of a consultation with our worthy Hon. Secretary was that I sent half the specimen to Professor Williams, and asked as a favour to be told his opinion. In a few days I received a letter stating that it was a most valuable specimen of the multiple cysts of the *Echinococcus veterinorum*, which gives rise to the small ($\frac{1}{6}$ -inch) tapeworm of the dog, the *Tacina echinococcus*; rarely seen in this country, but common among the Esquimaux and their dogs.

In the Professor's opinion, the disease had been in existence for many months, probably years, basing this remark upon the thickness and density of the walls of the capsules. I may state that it was partly at the suggestion of Professor Williams that this (to me) interesting case has been brought before you to-day.

In studying the history of this hydatid, one cannot help being deeply impressed with the discovery of this baneful intruder upon the animal economy of the herbivora in our midst. Nor is the interest confined to veterinary surgeons alone ; for to the members of the medical profession, having the care of the people of this country as their responsibility, the existence of the echinococcus is of the deepest importance, for when developed in the human subject it proves most fatal, the number of deaths resulting from it in northern latitudes, being, I am told, something enormous, whilst in the dog it is a certain agent of death. When the heads are introduced into the alimentary canal, they generally lodge in the small intestines, attach themselves to the walls by their powerful hooks and suckers, and eventually perforate the coats of the bowels, and it is in this initial stage they cause the most irritation, and consequently are most likely to prove fatal. When present in any quantity, they are bound to prove an awkward thing to get rid of, if, indeed, they do not prove fatal.

By the courtesy of Professor W. O. Williams, who has supplied me with some slides taken from the cysts contained in the specimen I sent to Edinboro,' I am enabled to show you some characteristics of the cestode under the microscope, and only hope that by being able to recognise the disease, we, as veterinary surgeons, may contribute our quota towards stamping it out, by burning all specimens we should happen to come across in our morbid examinations, and so prevent, as far as possible, its reproduction.

Mr. FLETCHER had seen a diseased liver in a horse, weighing upwards of twelve stones, but referable to scirrhus or cancerous deposit.

Mr. PICKERING had under his care a herd of shorthorn cattle affected with Rot ; he had one of them slaughtered, and found the liver studded with abscesses, the result of the ravages of the *Distomum hepaticum*; several of the herd were more or less affected, but with the aid of proper remedies they all recovered.

The PRESIDENT moved, and Mr. WHITEHEAD seconded, a vote of thanks to Mr. Greenhalgh for his interesting paper. Carried unanimously.

Mr. M. NAYLOR (who is in ill health) wrote to the effect that, many years ago, he saw at the College in Camden Town a cow affected in a similar manner to Mr. Greenhalgh's case ; the cow was sent up from Dorsetshire, and there was a distinct enlargement upon the right side, very perceptible when the cow was walking. She was nine or ten years old. Upon being destroyed by order of Professor Sewell, the liver was found to weigh one hundred and eleven pounds ; one of the cysts measured eleven inches across each way. Dr. Carstairs, of the London University, made a beautiful coloured drawing of the morbid specimen, which will doubtless be still preserved in the Museum, along with many other pathological drawings executed by that gentleman.

Mr. T. FLETCHER read an instructive and very interesting paper upon
SOME DISEASES OF PIGS.

I have been induced to bring before your notice this unsavoury subject from a feeling that we, as a body, are certainly deficient in our knowledge and attention to the diseases of an animal that plays such an important part in the food supply of the world. It is a very easy and comfortable way, on being requested to attend a pig, to say, Oh ! kill it ; but there are instances in which the owner places such a high value on the animal that it becomes necessary for us to give unremitting attention to the case, and obtain for ourselves that just credit for which we all so earnestly strive. There is also the poor man or widow whose rent depends on "piggy." That my paper will be disappointing to many, I justly fear, and crave your indulgence, as those older members of the profession know it is no easy task to snatch sufficient time from the daily routine of practice to work up the scientific theories and facts of the diseases in question. I have not attempted that ; I have simply confined myself to facts as they have come under my notice, as far as my memory serves me, and during some five-and-thirty years' practice.

Parturition.—I have chosen parturition as the commencement, for without subjects we cannot have cases.

The period of gestation is about sixteen weeks, but the gilt with first litter will often go seventeen weeks, and even longer, without any abnormal symptoms ; and considering the enormous quantity of young that are annually born, the breeder has little cause to complain of assistance, either professional or otherwise, being often called into requisition. When your services are required, you will find the sow straining violently, and very few other external symptoms present. The hand and arm should be well greased and gently and slowly passed, giving the vagina time to dilate. Having accomplished this, you will find a foetus of such size as to render a little traction necessary for delivery, or a foetus in such a position across the passage as to render normal parturition impossible. In such a case the foetus must be placed in a proper position, either by the hand, or when that is impossible, the accompanying hook or forceps, should be inserted into the mouth or rectum. When the foetus has been removed, do not examine too far forward for others, as such procedure is likely to cause fits. Allow time for others to come forward, as they generally will, or it may be that three or four be born and then one to remove.

Dead Fœtus.—When a sow shows all the natural symptoms of “pigging” at the proper time—mammæ filled, labia enlarged, etc.—without any violent or even normal amount of straining, and in the course of a day or two the labia is reduced in size, the mammæ become cold, and the milk secretion is stopped, you may rest assured that you have dead fœtuses in the uterus (or, as pig-men call it, “a bellyful” of dead pigs). The sow about this time begins to be dull and refuse her food, membranes injected, and very often purging; if fat and in good condition have her slaughtered, for if allowed to live, and the fœtuses not come away, your patient dies or becomes greatly emaciated. The treatment, if any, should be the same as for other septic diseases.

Prolapsus Uteri or Vagina.—One of the sequels of parturition is prolapsus vagina, together with the inversion of a *portion* of the uterus. I have never seen a complete inversion of the uterus as in the cow, sheep, etc.

Prolapsus vagina will frequently be present before parturition, and it will be necessary to return it and hold it in position until the fœtus comes forward, when the appliances must be removed until after delivery. Occasionally you may meet with prolapsus vagina and one horn of the uterus. This brings to my mind a case in which a veterinary surgeon in Lincolnshire was sued for £20 for malpractice to a sow during parturition. The animal had given birth to one pig when the veterinary surgeon was called in; he, finding prolapsus of the vagina and inversion of one horn of the uterus, returned them and inserted a skewer across the vaginal opening, and left instructions that as soon as another fœtus came forward they were to remove the skewer and allow delivery to take place, then again inserting the skewer. The attendants did not do so, but let the sow strain herself to death, then entering an action against the veterinary student as before stated. There was some difficulty in making the judge and jury understand the case, until it was explained that the uterus was very much like the finger of a glove, and that when one of the layers became inverted it completely prevented the passing out of any body. This fact, and the proof that the veterinary surgeon left instructions for the skewers to be removed, ended the case in his favour, and costs for four professional witnesses. There are many great difficulties to contend with, but the value of some breeding sows compels you to try what skill can accomplish; a truss is of no use, from the fact that it is almost impossible to keep it in position.

Prolapsus Ani.—This is rather common, more particularly amongst breeding sows, caused by their eating cinders, pieces of wood, and frequent costive condition of the bowels. Will sometimes find several inches of rectum protruding. Treatment: A cloth should be tied over the rectum and held in position by being fastened round the loins, and passed between the hind legs; keep the protruding portion clean with carbolic liniment; most astringents cause too much irritation. Special attention should be paid to the state of the bowels; give castor oil and N. Hyocm. $\mathfrak{z}\text{i}$. to $\mathfrak{z}\text{ii}$.; sometimes calomel has a good effect. After the bowels have been well emptied, feed very sparingly on sloppy food in which plenty of lard or dripping has been mixed. If sloughing sets in there is no use treating; a fat animal should be immediately slaughtered.

Mammitis frequently follows difficult cases of parturition, showing Metastases from womb to glands; also follows easy cases, and is accounted for by a chill or a feverish and inactive state of the bowels. It is not so difficult to contend with as in some animals; a dose of calomel, followed by S. Mag., and rubbing with camphor liniment, will generally remove it in a few days. Have never seen such bad results as in other animals.

Milk Fever.—Not very common in the sow; none of the violent symptoms shown in the cow. Most frequently spinal; begins with dropping of hind

legs, mammæ swollen and hard, loss of milk, bowels costive, urine scanty and high-coloured, skin cold. The early symptoms so resemble the paralysis often met with in pigs from deranged stomach and bowels, that were it not for the hardness of the mammary glands, and the coma which soon follows, it would be difficult to distinguish it from ordinary paralysis.

Treatment: Warmth, and a piece of flannel dipped in hot water and wrung out, and laid over the sow. Keep the litter away, and turn the sow over, or muscular cramp will supervene; give enemata and pass catheter. Little gruel.

Paralysis.—From indigestion, causing costiveness or diarrhœa, is of frequent occurrence, especially amongst brewers' pigs, where a good deal of sour ale is given. The animal is generally pretty lively, sitting on its haunches and dragging itself from place to place.

A few doses of Sulph. Mag. and stimulating the spine will generally restore them in a few days.

Rickets.—Nature and cause the same as in other animals; very seldom treated.

Rheumatism.—Frequent; at a loss to say what is the cause; have seen it most in well-bred and well-fed pigs. Very little swelling of the joints, most in the hocks; fore legs straight and stilty, the animal usually grovelling about on its knees, as though suffering from fever of the feet, and evincing pain on being made to move about. The appetite is not much affected except in the latter stages.

Treatment: See to the comfort and cleanliness of the animal, allowing plenty of good dry straw; rub the joints with a mild turpentine liniment, give Pot. Bicarb., Mag. Sulph., and Acid Salyi.—they will usually take it mixed in the food.

Foot-and-Mouth Disease.—Pigs very readily take this complaint, and are a great source of transmission to other animals. It begins with tenderness in the feet, and often confines itself to the feet, causing great pain, and sloughing of the claws. When the mouth is affected it is mostly the tongue. It causes great constitutional disturbance, and is more fatal than in ruminants.

Treatment: Poultice the feet with cow-dung, and dress with C.B. liniment; give S.S.; have not seen any particular benefit from salicylic acid.

Congestion and Pneumonia.—Sty-fed pigs are very subject to both these complaints. Congestion in summer when the days are hot and nights cold, and Pneumonia when it is wet and cold night and day. I attribute this peculiarity to the fact that pigs do not perspire like most animals (not even by the mouth, like the dog). I think cold showers bring on Pneumonia sooner than anything else, for wet seems to abstract the heat from the body. Pigs that have water to roll in during very hot weather do not suffer from Congestion.

Symptoms of Congestion: The animal will be found standing in a corner of the sty, breathing heavily but not fast, dull, ears cold and of a bluish pink colour—in fact, the whole of the body cold, membranes injected, bowels constipated, and urine scanty and high coloured.

Treatment: Rub the sides well with mustard, or in severe cases, mustard, vinegar, and turpentine, and put over that a sheet of paper to keep it moist and keep up the action; give Se. until warmth returns, then give St. combined with Sulph. Mag. If not convalescent in a few days they seldom do any good.

Pneumonia, or, as it is called by pig-men, "rising of the lights," is the most frequent disease we have to contend with, and if not always fatal, generally spoils the animal. As I have said before, exposure to wet weather is generally the cause, pigs will bear a good deal of cold if it is not associated with

wet. It is often brought on going or returning from market, or being kept in a sty where the wet drops off the roof. It is considered by some pig-keepers to be epidemic, but such is not the case. The earliest symptom is an increase in the respiration ; but this is often overlooked until the animal has begun to cough a good deal. The appetite is not much impaired for three or four days, so that it is not much noticed, but after this time he refuses food, and may be seen standing restlessly in a corner, breathing fast, and if moved begins to cough violently. Should treatment not soon relieve these symptoms, the breathing becomes worse, the animal is gasping for breath, the mouth open, anxious expression, and death closes the scene. From the commencement the skin varies in temperature, sometimes being extremely hot, and at other times cold ; also it assumes a purplish colour, but as this is a very general thing in many diseases of pigs, it has no significance beyond denoting an altered condition of the circulation. The breathing and cough are the two most notable symptoms. As to temperature, I must say that until lately I have not used the thermometer, but where I have it has indicated 102° to 104° ; pulse, as taken from the fore leg above the knee, quick and compressible, but as I have not yet been able to satisfy myself what is the normal pulse of this animal, I have taken more notice of the quality than the quantity. Some pigs' pulse I have found to be 40 in health, others in the same sty 60 ; but it is very seldom they will stand for you to take the pulse.

Treatment : Like many other inflammatory diseases, if we had but seen them in time, bleeding would have been beneficial, but when called to one of these cases the time for bleeding is passed, or else the pig-man has done what he could by cutting the tail or ear. I sometimes open the vein with my pen-knife. Although you may sometimes get blood pretty freely from the tail, I object to the ears being cut, on account of after sores and the mess the animal makes in shaking the head. Give three or four good doses of calomel, $\mathfrak{z}\text{p.}$ to $\mathfrak{z}\text{i.}$, with $\mathfrak{z}\text{i.}$ to $\mathfrak{z}\text{ii.}$ of S. Mag. ; follow this by a mixture of Squills $\mathfrak{z}\text{i.}$, Sp. Chlorof. $\mathfrak{z}\text{iii.}$, Vini Ipecac. $\mathfrak{z}\text{ii.}$, Aq. to $\mathfrak{z}\text{vi.}$, one or two tablespoonfuls three times a day. Or, Squills $\mathfrak{z}\text{i.}$, Hyoscem. $\mathfrak{z}\text{p.}$, Aq. $\mathfrak{z}\text{vi.}$, two tablespoonfuls three or four times a day. Dress the sides well with mustard, etc., and wrap a towel or broad bandage over it.

Apoplexy.—Pigs are particularly liable to this form of disease ; it is of three kinds : congestive, without rupture of the vessels of the brain ; congestion, with serous effusion ; and congestion, with rupture of blood-vessels. The form that is most prevalent is simple, or congestion without rupture. The only premonitory symptoms are a champing of the jaws, frothing more or less at the mouth, and standing with legs propped out as if going to fall, when suddenly the head is thrown upwards and backwards, and the animal rolls over, the eyelids convulsively twitching, and struggling violently for a few minutes. The cause is usually over-feeding on a too stimulating diet, although I have seen it result from powerful direct rays of the sun on the animal. Brewers' pigs, and those kept at large boarding schools, are frequently affected—the former from getting too much beer, the latter getting the liquid in which salt meat has been boiled. I would here caution you to inquire closely into the food supply of pigs affected with Apoplexy, as I have seen six good pigs lying dead at once from nothing else but being fed on swill from a pork-butcher's, which has contained a lot of brine, or liquor, the residue of the ham or bacon-salting process. Salt-poisoning is a fact well known to the keepers of pigs. Sometimes salt is put into swill in hot weather to make it keep, but in all forms it is equally prejudicial.

Treatment : A bucket or more of cold water dashed suddenly into the face of the animal is the best temporary relief ; then bleed pretty freely, and give a good dose of Sulph. Mag. or sulphur, or what I now think is better, S.S. $\mathfrak{z}\text{ii.}$, Acid Hydrocyan. M. x. to xx., or Bromide of Potassium $\mathfrak{z}\text{p.}$ to

31. Medicines must be given between the attacks. When the animal is in the fit it is very difficult to say whether it will recover; but the symptoms must be closely watched, and if he is longer in it than usual, and the skin changes to a purple colour, the knife will be the best doctor.

Measles.—This disease is more easily recognised after death than before, the cellular tissue between the skin and the muscles showing a good deal of congestion. One of the symptoms during life is discolouration of the skin, which, as I have said before, is so common in the pig; but here we have connected with it an irritableness, the animal evincing a great desire to rub against anything within reach. It is not at all a dangerous disease, and the pig will usually recover if allowed sufficient time. He becomes dull, refuses part of his food, but soon becomes amenable to treatment, which should consist of a few doses of Sulph. Mag., and sulphur, and a brisk rubbing of the skin with vinegar and water.

In the discussion that ensued, several members joined, the principal topic being the appearances of the intestines in Swine Fever, the essayist not having adverted to this disease as he thought its pathology had been fully dilated upon recently.

Mr. SCHOFIELD thought we were much indebted to Mr. Fletcher for his excellent paper, and moved a vote of thanks to him. The proposition was seconded by Mr. AXE, and carried with acclamation.

Mr. FLETCHER returned thanks, and described an ingenious noose for catching dogs.

SOUTHERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

(Continued from p. 212.)

An invitation was then given by the President to Mr. Greathead to speak. The President mentioned that the Royal Society for the Prevention of Cruelty to Animals, having a legacy of £500 left, stationed an inspector at Rochester, but when the legacy was gone the inspector was withdrawn, and now there was a local society, to which Mr. Greathead was solicitor.

Mr. GREATHEAD thanked Mr. Martin for his very great kindness in inviting him to the meeting. Mr. Martin had intimated to him that the subject of societies for the prevention of cruelty to animals would be brought forward, and that he thought it would not be fair to make complaints unless some one was present to take up the cudgels in behalf of the societies. He was the hon. secretary of a little society working in a district which had a population of probably 150,000. It was a society which was purely and essentially local. It had no connection with Mr. Colam, or the Royal Society, or any other society. Their money came from their own people, and they were essentially local. He did not say one word for or against the Royal Society. The remarks Mr. Martin had made, he felt, did not apply to him at all.

The PRESIDENT: They do sometimes.

Mr. GREATHEAD: I feel really there is nothing to answer, because I don't take any part of that as applying to my society. If Mr. Martin will kindly mention any particular case, I am prepared to explain anything he has to complain of.

The PRESIDENT: I think it would be rather invidious to mention any particular case. What I wanted principally to convey is our distrust of the inspectors.

Mr. GREATHEAD: I think it is unfair to ask a man to answer a complaint of which he is not acquainted. Generally, the conduct of my society

is as good as I believe it is possible for it to be. We have a committee, consisting of gentlemen of the town, who are well known, and who would not lend themselves to any action that might be commented upon as dishonourable.

The PRESIDENT : Not if they knew it.

Mr. GREATHEAD : We are none of us perfect, and if our society came before the public, and everybody said we were perfect, I should think there was something wrong. I don't know of a single case brought before the magistrates here in which I or any one have been told we ought not to have brought it forward. I have never had the slightest intimation from the magistrates that I was exceeding my duty.

The PRESIDENT : Cases are dismissed.

Mr. GREATHEAD : Out of the number we had last year we only had six dismissed, and some of those were dismissed, not because they were not proper cases to bring before the magistrates, but on some technical ground. Really, if we are going to place any confidence in our magistrates, we ought not to say, because a man is not acquainted with horses, that he is going to give an unfair decision. It is no object to them to favour the society.

The PRESIDENT : Sentiment.

Mr. GREATHEAD : Well, the proof of the pudding is in the eating, and if we exceeded our duty we should not get so many subscribers, and should not receive the approbation of the magistrates.

The PRESIDENT here mentioned a particular case in which he thought Mr. Greathead's society had been harsh.

Mr. GREATHEAD explained and defended the prosecution in that instance. He then said, I sincerely and earnestly believe this society is doing a great work, and we have never, to my knowledge, persecuted any man. We caution over and over again, but we must not confine ourselves to cautions and be laughed at. The moment the society becomes a farce through simply cautioning, that moment I leave it. I have had the approbation of leading members of the veterinary profession, including Mr. Fleming, in carrying out the duties, and I do not think the remarks of Mr. Martin apply to my society. If the society at any time declined to prosecute a man because of his social position, that moment I would resign.

Professor PRITCHARD : I should be very sorry for it to go forth that the Royal Society was not represented here, because I belong to the committee. I want to remove from Mr. Martin's mind an erroneous impression. In the first place no prosecution by the Royal Society is carried out until the matter has been before the committee. The officer has no power to prosecute.

The PRESIDENT : Mr. Colam has, I think.

Professor PRITCHARD : None without the sanction of the committee.

The PRESIDENT : I am personally acquainted with a case in which an inspector of the society summarily prosecuted the owner of a horse he stopped in the street.

Professor PRITCHARD made a note of the name of the inspector. He then asked if it was correct that the Royal Society removed their inspector from this locality when the £500 legacy was expended.

Mr. GREATHEAD : Yes.

Professor PRITCHARD : For what reason?

The PRESIDENT : Because the money was gone, I suppose.

Prof. PRITCHARD : You say magistrates are always willing to convict?

The PRESIDENT : They lean to the society.

Professor PRITCHARD : I know a case in which a horse was driven on three legs, but the magistrates dismissed the case. Another summons was asked for, which they refused, and the Royal Society had to go to the judges.

Lord Coleridge soon put the magistrates in their proper position, and granted a *mandamus*, and they not only granted a summons but were made to convict. I can assure you that is not a single case by numbers. I have been before magistrates scores of times when it has been the greatest possible difficulty to get a conviction, although the evidence was beyond denial, and they have absolutely had to be threatened before they would do what they knew they ought to do. If there are magistrates more disposed to deal fairly with the society than others they are the paid magistrates, and not the glorious unpaid. I think it is unfair to refer to poor people. I have been in prosecutions when the noblest men of the land have been the defendants. I believe the society does an immense amount of good, though it is bound to err sometimes. I think if the President weighs some of his points over he will be inclined to alter his opinion.

Mr. PYE : I as a farmer believe the local society has done an immense deal of good. In fact, I subscribe to it, but I think if there were more practical men on the committee it would be better. I think half the men on the present committee really cannot be practical men enough to know whether cases are cases of cruelty or not. I think if there were more practical men on the committee they would know what was really culpable cruelty and what was a casualty that might happen to anybody.

Mr. GREATHEAD : I'll make a note of that.

The PRESIDENT : My object in bringing the matter forward is that I know from experience there is a great deal of exaggeration in many cases.

Mr. PYE : I quite agree.

The PRESIDENT : Whenever I can assist the society I do, and I never oppose it unless I am obliged to. It isn't often noblemen are prosecuted.

Professor PRITCHARD : You can't find a duke in every street.

Mr. MYLES : These horses get out of the hands of the better men, and the poorer men buy them.

The subject then dropped, and

Mr. BANHAM read a paper on Spavin, which is appearing in the VETERINARY JOURNAL.

Discussion was invited upon the paper.

Professor PRITCHARD : With regard to the catchy action, I think our friend has overlooked a little matter. A horse never brings its hock to that flexed condition which he represented on the table. If he did so the front of the fetlock would strike the belly every time he moved. The jerky motion is due, not to elasticity of the ligaments, which possess no elasticity, but to the fact that the two principal connecting ligaments, those between the astragalus and the tibia, are crucial, and are acting, to an extent, independently of each other. Even when suffering from Stringhalt a horse does not flex his hock to an extent to bring about that jerk. Now with regard to this bursæ that you speak of—

Mr. BANHAM : It's a pure bursæ. You can have bursæ under the skin. You can have deep-seated or subcutaneous bursæ.

Professor PRITCHARD : What you call a subcutaneous bursæ is simply what areolar tissue is, a structure made up in a moist manner, so as to separate from the blood a quantity of serum. A spurious bursæ is similar, but coarser and more albuminoid in its character. Those we find in our own elbow and other places, but we have no such arrangement in front of the horse's hock. I will defy you to find it. There is a bursæ near to the spot you have named, but that is between a branch tendon of the *flexa metatarsal* and the bones of the hock. In dealing with that portion of the tendon I should advise any one who attempts Professor Dieckerhoff's operation to be very careful not to injure it. I think you, Mr. Banham, are under the impression that Spavin in nearly every case commences within the joint.

Mr. BANHAM : No, I have given no opinions of my own. I simply want to get the opinion of this meeting.

Professor PRITCHARD : Well, the people you quote lay it down so. My impression, and I hold it very strongly, is that in the majority of instances it begins on the outer surface of the joint. When we have to deal with articular disease in association with Spavin, we have very little chance to get rid of lameness. You may fire, blister, use escharotics, use them in any way you like. If articular disease is associated with it, to bring about ankylosis (bring it about as you like) is the only chance ; if that is correct, we must come to the conclusion that hundreds of horses suffer from Spavin, and are treated, and recover, and the disease is entirely confined to the external surface. As to when the pain is most marked, I do not think we can lay down any rule. If a horse is lame, but if the articular surfaces are not involved in the disease, the further he goes the better he goes ; but if the articular surfaces are involved there is ulceration going on, and the further he goes the worse he goes. But beyond that there is no rule as to when the pain is most marked. I have known horses with very large Spavins—one as big as a hen's egg—which have never been lame. Most of you are aware a committee has been formed, on the suggestion of Sir Frederick Fitzwygram, to lay down rules as to what should be considered soundness or unsoundness in horses. But I think we are losing sight of one fact when we attempt to lay down rules. The law of the country has laid down what is sound and what is unsound, and we are bound to abide by it. Lord Campbell says that what does now, or may hereafter interfere with a horse's usefulness constitutes unsoundness. The lawyers of the present day put it in another way, and say if the seeds of disease exist in the animal at the time of its sale it is unsound. So that, whatever rules we may adopt, they will have no influence on the decision of a court of justice. I should like to see more unity in our certificates, but how is it to be got ? Certificates are simply expressions of our opinions, and our opinions don't agree. Take the matter of Splint. There are Splints, and Splints, and what appears to me to be a case of unsoundness is to another man a matter of very little consequence, and there's the difference of opinion. It applies to other things, such as Cataract in the eye. The matter has been on the *tapis* for the last thirty-five years to my personal knowledge, and if you examine literature you will find it's a hundred and thirty years. With regard to absorption of Spavin, I have no doubt the enlargement does become lessened to a very considerable extent, but I have no doubt also that whenever a horse once has Spavin, the whole of the traces are never removed. Dr. Spooner used to say, "Once a Spavin always a Spavin. Once a Splint always a Splint." As to treatment, I do not believe there is any particular patent way. Analyse the whole of the treatments and you will find the very large majority reduce themselves to one principle, and that is, active counter-irritation. You may produce it in a number of ways, but it amounts to the one principle in the majority of instances. There is what is called the new operation of Hunting's ; there is nothing new in it. I can recollect, when I was a boy, my father performing an operation which amounted to the same thing ; instead of passing a knife under the skin, he used to, and still does, use a thin hot iron to divide the skin, and as he considered brought about the very same result, and looked upon it as infallible. Professor Spooner's operation I have seen performed several times with good success.

Mr. F. WRAGG : As to Mr. Banham's first question, I have seen Spavin in hocks of different angles, different sizes, and different shapes. I think, as far as my memory goes, I have seen it most in those with an angle of greater than 140 degrees. Next as to the seat of the disease, Mr. Banham is of opinion it commences inside ; my friend who has just sat down, considers it

commences outside. I rather differ with both of them. I have always inclined to the theory that it commences in the interosseus ligaments. The kind of Spavin that most often produces lameness is, in my opinion, that situated anteriorly. As to Spavin being absorbed, I quite agree with the remarks of Professor Pritchard. As to whether it is unsoundness, I say decidedly it is unsoundness, and I will also make a remark here about coarse hocks. I believe it is general among practitioners to give certificates of soundness for horses with coarse hocks. I will take what Lord Campbell said as to unsoundness. I have seen several horses that, in my opinion, had coarse hocks when I passed them ultimately become lame from Spavin, and therefore I shall never give a certificate of soundness myself for a horse with coarse hocks. As regards treatment, I have tried all sorts except this Dieckerhoff's operation, but I pin my faith to the firing-iron, and to firing pretty deeply, and putting a good blister on afterwards. As to its being hereditary, I should certainly object to breeding from horses that had Spavin.

Mr. EDGAR : Our thanks are due to Mr. Banham for the trouble he has taken in a matter of much importance to us and the public. Mr. Wragg's theory is one thing, Professor Pritchard's another, and Herr Dieckerhoff's a third. But there are matters which can be settled beyond argument or theory. Whether Spavin originates in the bone, or in the tendinous structure, or outside altogether, can be demonstrated by section. Sections of the hock can be made to prove it if we work microscopically and bring forward specimens. With regard to breeding from Spavin, it is most hereditary. Sidebones have been largely eradicated in some districts owing to breeding from mares and horses unaffected, and I do not see why the same thing cannot be done with Spavin. If farmers and breeders would make up their minds to this, we should be striking at the foundations of this disease. With regard to treatment, we have each our special method, and one is little better than the other. With regard to absorption, I have had a case of it. I had an animal which had been treated for enlargement of the fetlock joints, and rested, and blistered, but my diagnosis of it was ulceration of the hock joint. It was treated by pyro-punctuation, and there was a very considerable exostosis from it. After three months it could not work, and then a large deposit was thrown out over the surface of each hock, and the horse worked for eighteen months "carrying" its hocks and not flexing them. Then this exostosis became absorbed, and the cruciform bones were locked, and lameness came on as bad as ever, and the animal was destroyed.

The PRESIDENT : I think the value of Professor Pritchard's opinion is very great. I have seen all kinds of hocks, the small and the well-developed—some even with Stringhalt ; but I do not think there is any formation that predisposes a horse to Spavin. I think in all kinds of hocks you will meet with Spavins. I don't think you ought, in a court of law, or in a certificate, to condemn a horse because its hocks are large and coarse. A large experience shows us that horses with large hocks are better capable of bearing fatigue and work, and carrying the weight of their bodies than horses with small hocks, and I think you get more serious instances of Spavin in small hocks than you do in long, well-developed hocks. Coarse hocks are not necessarily diseased and unsound. As to Mr. Edgar's suggestion, the thing would be to select a horse in which Spavin had commenced, and it would be rather expensive to purchase horses for killing with incipient Spavin. I should never breed from horses with any bony enlargement or bony deposit. There is no doubt there is a constitutional ossific diathesis, and "like begets like." As to certificates of soundness, you have your reputation at stake, and you must act accordingly. If there is Spavin commencing in the bone, it must involve the ligaments, and I think once a Spavin always a Spavin.

Mr. HOGBEN : I have known cases where, after firing, blistering, and rest have failed, the animal has been put to work, and has become sound.

The PRESIDENT : A case of ankylosis, I should think.

Professor PRITCHARD concurred.

The PRESIDENT : Why does the lameness pass away after a certain amount of work ?

Professor PRITCHARD : Owing to increase of circulation, the quantity and quality of the synovia in the bursa is increased and improved.

Mr. BANHAM : With regard to the bursæ, all true bursæ are lined with endothelium, whereas spurious bursæ are not. What we call true bursæ are nothing more than spurious bursæ, really brought about by an ulceration of the areolar tissue. With regard to Dieckerhoff's operation, I have seen it performed, and it sets up tremendous irritation and inflammation ; and if it does not he puts in something to make it. It does not scar the animal, and if it does not succeed you can resort to something else. It is a treatment, I think, worthy of our attention. Where the disease of Spavin commences I am not myself certain. That requires that we should put our knowledge together, and that is one of the reasons why I brought the subject forward. With regard to the flexion, I was aware that the elasticity is due to the crucial action of those two ligaments, but I do not know to what angle the hock has to go before that flexion takes place. That would be another thing well worth looking to. I have seen Stringhalt horses that have made wounds on their abdomens. I must think that this flexion comes into play in those cases. I do not think a bony enlargement ever gets smaller, or but very little, if any. I think the wasting is due to the connective tissue or fluid enlargement around the seat of the Spavin, just the same as Splint. With regard to soundness, I do not see why there should not be some agreement. Why should one man call a Spavined horse sound, when another does not ? If they both agree there is Spavin, one has no right to give a sound certificate.

Professor PRITCHARD : If a man writes a certificate of soundness and the horse has Spavin, the party who buys can make him pay.

Mr. BANHAM : Does this meeting think that if an animal has any disease we ought not to certify it sound ? (General assent.)

The SECRETARY : I always point out if a horse has a Spavin, or anything else, but I say, "In my judgment he is a good horse, and you may buy him." I do not suppose on two out of ten certificates I write sound.

Mr. BANHAM : If that is so, we ought not to have half the cases in court we do have. Half the cases are not upon differences of opinion, but on a different construction of opinions.

This ended the discussion.

A vote of thanks was accorded to Mr. Banham for his paper, and another to the President for his conduct in the chair.

The PRESIDENT : I think the profession is rising in importance, and I am pleased to see we are so well represented here. I think we shall gather a great deal of practical good from these discussions.

The meeting then ended.

The members and several local friends then dined together at the "Bull," the President in the chair.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of the above association was held in the Medical Institute, Hope Street, Liverpool, on the 14th August ; the President, J. W. T. Moore, Esq., in the chair.

The discussion on Mr. H. Summer's paper was postponed until the next meeting.

The PRESIDENT then read the following address, at the close of which the usual vote of thanks terminated the meeting.

Gentlemen,—Ever since the formation of veterinary medical associations, it has been the custom for the President of an association to commence his year of office by giving an inaugural address.

Following such precedent, it would have been my duty to have delivered an address at the meeting last February; and it may not be out of place if I recapitulate the reasons of my not doing so. Having received instructions from the Privy Council to hold myself in readiness to proceed to Newcastle-on-Tyne on an early day in April, I thought the matter carefully and anxiously over, and came to the conclusion that I would best serve the interests of the association by tendering my resignation, thus giving an opportunity for a gentleman to be elected in my stead who would be on the spot, as it would be out of my power to pay the necessary attention to the affairs of the association, or to attend all the meetings during the year. To my surprise, I was asked not to have my letter of resignation read, but to retain the position to which I had been elected. In deference to the unanimous desire of the members present, I consented to remain in office. Never dreaming for one moment that my resignation would not be accepted, I had not prepared my address; and being unable to attend the last meeting, I will now, with your permission, although late in the year, give you a short address.

Gentlemen, allow me to cordially thank you for the honour you have conferred upon me by placing me in the proud position I occupy as President of this society, and also to thank you for the further confidence you placed in me by not accepting my resignation.

I am of those who look upon it as an honour, and one that each member should strive to attain. Imbued with these sentiments, although satisfied that your choice could easily have fallen upon a better and abler member of our society to be its President—one, who endowed with more scholarly ability, and more extensive and varied professional experience, would have added *éclat* to its deliberations—to none do I yield in earnestly desiring the welfare of our noble profession, and in seeing it advance with the requirements of this enlightened age. Knowing that labour, however slight it may be, if in a good cause, brings its own reward, I bow to your decision, and will endeavour to maintain the dignity and usefulness of the position.

Matters political and social, as pertaining to our profession, have of late been so ably handled in inaugural addresses and in letters to the respective journals, that little or no room has been left for further remark. We have had the views of the different schools set forth in the introductory addresses to the students, which show that we are very far from being the united profession we boast to be.

Much happiness and peace was to accrue from the cutting down of that upas tree, the diploma-granting power of the Highland and Agricultural Society of Scotland; and once under one university, together with an Act of Parliament to prevent any but duly qualified calling themselves veterinary surgeons, the professional millennium was to be reached; but the dissatisfaction expressed against our governing body, as shadowed forth by those addresses, must dispel any lingering doubts that were entertained that this desirable consummation had been reached. And it may be asked, why these onslaughts on the Council of the Royal College of Veterinary Surgeons? Is there any foundation in fact, why this obloquy should be heaped upon the Council, and especially the Examining Board?

The accusation, as framed in these introductory addresses, is that the

latter body has been too exacting in its demands on the students' knowledge of the profession they wish to become members of. Now, when we consider the number of failures in the late examinations, it would appear at first sight as if it were just ; "but we must bear in mind that the Royal College of Veterinary Surgeons is the veterinary profession ; and this does not exist for the schools, but the schools for it. It is bound by all the means in its power to not only do its duty to itself, but also to the public, by improving and testing veterinary education" (Fleming). The members of the Examining Board are tried men, above suspicion ; their abilities no one can justly call in question, and I feel sure that no student is rejected who is competent to pass. Knowing that it is more particularly in the practical examination that students fail, would the schools not be acting in their own interests if they frankly admitted that they have not the facilities to give a thorough practical training, and, instead of thwarting the Council in obtaining the addition of an apprenticeship clause to the Charter, bow with a good grace to the inevitable, and have it established forthwith ? For such, I believe, must be the ultimate issue of the present condition of things.

Gentlemen, we have all been students at one or other of the schools, and we must admit that the opportunities for acquiring practical knowledge in our time was *nil*. Has this been altered for the better since then ? What say the students themselves ? Either in the journals, or in personal communication with any of them, is not the burden of their complaint that they see next to nothing of practice at college ? Several letters have been written testifying to the excellence of the arrangements for acquiring practical knowledge at one school, and the writers allege that in this case the students are to blame for not taking due advantage thereof ; if so, why blame the Examining Board when they are rejected as deficient in knowledge ?

We do not blame the professors, many of whom are, without doubt, earnest, zealous, and distinguished in the several subjects they teach ; but they simply have not the facilities to enable students to acquire practical knowledge.

It is sheer nonsense to argue that because the apprenticeship clause of the medical students was done away with, ours ought not to be introduced ; for every one must be conversant with the splendid opportunities afforded the medical student at the hospitals for the acquirement of practical knowledge. If it were possible that our students, during their theoretical training, could conjointly, as the medical students do, have such facilities, then it is evident no apprenticeship would be required ; but, in view of the fact that there are no such institutions of sufficient importance in connection with our schools, the question arises, How are our students to be practically taught ? and I answer, by being bound an apprentice with a veterinary surgeon, who, if he had a real interest in his profession, and a proper appreciation of the responsibility and trust imposed upon him as guardian and teacher, would take a pride in teaching his pupil the rudiments and practical details of it. And, in my opinion, this tuition should last for a period of not less than twelve or eighteen months, which, together with what could be acquired during vacation between terms, would surely go far to overcome the undoubted deficiency in our students.

Have we not the authority of the Principal Veterinary Surgeon to H. M. Army that it is in practical details that Army candidates fail ?—and when over fifty per cent. of such cannot pass the required examination (and we must bear in mind that these candidates have received their diplomas) it is proof positive that something is wrong in their training. Could anything be more absurd, in the way of examination as to the soundness or otherwise of a horse's eye, than what we are told took place in Edinburgh in July of last year ? Surely no Board of Examiners would be doing their duty either to

the student or the public, to certify that such a person was duly qualified to practise the art and science of veterinary medicine and surgery.

It is a very regrettable fact that such exhibitions are not isolated instances of incapacity, in a practical sense, on the part of either students or young veterinary surgeons.

And, now, gentlemen, just a word as to the composition of the Council and the Examining Board. I am of opinion that neither are, in the widest or truest sense of the word, representative of the profession. That England will, on account of the number of her practitioners, send the greater number to our Parliament, may at once be conceded; but that the proportion should be in the ratio it is at present is not, nor can it be, conducive to contentment within our ranks. If Scotland has cause for complaint in this respect, how much more has Ireland? She has but one representative on the Council, and none at all on the Examining Board. Is this a just representation? Is there only one man in Ireland of sufficient ability to sit in the Council? and are there none fit to be Examiners? Of the four gentlemen recently appointed as Examiners, but whose appointment was shortly afterwards rescinded, three reside in England and one in Scotland. Here, again, those engaged in practice or acting as Government veterinary inspectors in Ireland have been overlooked. I am one of those who feel sure that there are plenty of good men and true in our own ranks who are capable of fulfilling the important duties of Examiner, and I believe there are men in Ireland willing and capable to serve on that Board; and I venture to think that the sooner we realise the existence of this anomalous condition of our representation the better it will be for the peace of the profession. Do not, as a body, let us allow disloyalty to get hold of our profession; there are those who would gladly welcome a college in Ireland with power to grant diplomas, and an attempt has been made more than once to bring this prominently before the Government and to enlist its sympathy and support. We can have no objection to a school, but every objection to its being vested with power to grant diplomas.

But enough of politics; let us look briefly at our *Social Condition*.

First, as to our relations with the public. "These relations are not by any means satisfactory. Our profession, by not a small number of people, is looked down upon and sneered at; there can be no doubt about that. It is called a noble profession, and it is so; but its nobility is, I fear, sadly marred by some of its members, found in the highest as well as in the lowest walks of professional life." Admitting that this is true of the medical profession—and I cull it from one of their own journals—how much of it is not in as great a degree applicable to ours? Is not our profession equally noble with theirs? Nay! I would say more so; for I cannot conceive of a higher calling than the alleviation of pain in the lower animals. Man, by reason of his superior intelligence, can in some measure help himself in this as in all else, but the poor dumb beast cannot. Having a mission with such in view, should we not occupy a much higher social position than we do? Where does the blame lie? With ourselves, I am afraid, we must admit. Are our actions always calculated to inspire the public with respect for us? Do we strictly adhere to our mission? or is it but a cloak under which to hide our greater affection for horse-dealing, training, and racing, and the blacksmith's forge? Can anything be more derogatory than members of a noble and scientific profession carrying on at the same time businesses such as livery-stable keepers, job masters, contractors, coach and harness makers, cab proprietors, etc., etc.? I admit that it is difficult to dissociate the forge from our profession, but it can be done, and is done. But surely there can be no place amongst us for the former trades and callings, if we have any desire to see ours take its proper place in the ranks of the learned professions. But, granting that we practise none of these things, and adhere

strictly to the legitimate practice of our profession, let us take, for instance, the differences of opinion in a case in the Law Courts—one man swearing one thing, another in direct opposition, while a third maintains that both are wrong. Does not this show an inherent weakness that is not calculated to gain us respect, and that the sooner we have a common basis to work upon the better? I do not pretend to say that we can all be of one opinion in all cases; such a condition would not be normal, but rather mark a stage of stagnation in our progress in the prosecution of the causation and treatment of disease, if not an atrophy of it. It is in agreeing to differ that we hope to arrive at the truth, which is the goal of all scientific research; but I do say that in such cases as whether a horse has an exostosis on his hock or not, whether it is necessary to dock horses' tails or not, whether it is necessary to dishorn cattle or not, whether the performance of these two latter can be truly called operations or not, and whether they ought to be performed by veterinary surgeons or not, some common basis should be found upon which to act. So much has been said and written on the subject of Spavin and docking that I shall pass over these with the remark that there ought to be no division of opinion about Spavin; a horse has either a spavin or he has not, and a proper knowledge of the anatomy of the parts affected will enable one to arrive at a correct diagnosis. The docking of horses has been so effectually dealt with by Mr. Walker, of Oxford, and others that I need only say that while admitting the necessity to dock in isolated cases, I cannot agree with the indiscriminate docking that is carried on merely for the gratification of a depraved taste, or at the bidding of a coachman who has decided to his own satisfaction that it must be done.

With reference to the DISHORNING OF CATTLE, let me draw your attention to a case reported in the *Irish Times* of 25th November last, to which my attention was called by a professional brother, and my opinion, as to its cruelty or otherwise, desired.

It seems that in the County Meath the dishorning of cattle is extensively practised, and in this case the mutilation had been performed with an amount of barbarity and heartless cruelty that I did not conceive possible to exist in this, the nineteenth century, much less to be supported and countenanced by members of our noble profession. Noble, forsooth! what an empty sound, and how meaningless in the light of such revelations. A constable of the Royal Irish Constabulary met a man driving thirteen beasts which had recently been dishorned; blood was flowing freely, and tracing it up, he found the yard where the deed had been done (not by a professional man, however), in which were pools of blood partially covered over with litter. The only professional witness for the prosecution proved that the operation (?) had been performed in a most brutal manner, and in one instance some of the nerves and blood vessels of the brain were partially exposed. This was admitted by the defence, and the question practically resolved itself into one of whether it was right to dishorn cattle or not; and on this point some extraordinary evidence was given by three of our professional brethren; one of whom gave it as his opinion that it was absolutely necessary to dishorn cattle fed in yards on tillage farms, and, further made the extraordinary assertions that if fed in byres or sheds they would die of cold from want of exercise, and that tied up they would not live a fortnight! It would be interesting to know what practical data this witness has to base his assertions on, and how far they could be borne out by the stall-feeding farmers of the United Kingdom.

The evidence of the next witness (who stated that he was a member of Council of the British National Veterinary Association), was to the effect that it was right and necessary to deprive them of their horns, that they throve better, that it was not any more cruel than the majority of operations

usually performed on animals, and that it increased the value of the animal. Herein lies the one grand reason why this animal, which the all-wise Creator has made after his own glorious idea of perfection, should be mutilated and deprived of part of that economy which adds beauty and finish to its frame. Is there anything of an elevating or ennobling character in cutting and carving at a perfectly healthy best, especially when we are aware that it is not to alleviate pain, or assist nature in any of the varied forms of imperfection she displays? Is it worthy of members of a society who have for their motto "Humanity, Science, and Utility"? Where is the humanity to be found in this barbarous act? Where the science? Is it in the perpetration of an act that any cowboy can and does do with a common hand-saw? Where the utility, when the screwing on of a knob to the point of the horn would equally answer the purpose? Surely to support such cruelty as this is a perversion of our mission as ministering servants to the suffering brute creation. Nothing is more contemptible than client treating, and we should not evince any desire to conciliate or benefit owners at the expense of the animal, when we know that other means are applicable, but show that we have higher aims and aspirations in life than the mere getting of money.

Second, *Our relations with each other.* Are these satisfactory? Are we always quite loyal and honest to each other? Do we always do unto each other as we would be done by? Do we always behave as gentlemen should to one another? I fear not. It is needless to give examples; these will readily occur to all of you. The individual characteristics of human nature differ widely, from the most perfect to the most depraved. We cannot alter that. Still, I think we can do something which will elevate our profession into a position of greater honour and respect. We ought to be more loyal, more frank and honest with each other, showing more sterling reality in our desire to help one another. What is the use of prating about dignity and social status, and the rapid advancement our profession is making under new Acts of Parliament and Charters, if we do not practise the ways and manners of gentlemen towards each other and the public?

Fothergill, in the "Practitioner's Handbook," says: "Always remember that we have to sustain the reputation of our profession as well as our own; the reputation of the profession is the aggregate of the individual reputations of its members."

One main cause of our unsatisfactory relations with each other and the public is the mystery which underlies our fees. There is great competition in the profession, and in some quarters a great tendency to underselling; while there are some who do not scruple to adopt all sorts of dodges for getting patients at a professional brother's expense. Take, for instance, the fee for the examination of horses as to soundness. One charges a guinea, another half a guinea, while another charges *the ridiculously inadequate sum of five shillings!* Then, again, some send out all kinds of balls at two shillings and sixpence a dozen, and advertise the fact. Many other similar instances could be brought forward, but it would take up too much time. Let us be more united, let us be more business-like, and let our fees be more equable, and we shall be more honoured and respected than we are. The *Lancet* said, some years ago: "This is a free country, and men may dispose of their services on any terms they please." But there is a strong moral obligation upon all professional men to decline to give professional services on terms which the great majority of their brethren consider to be inadequate. Gentlemen, there is another very regrettable fact that we cannot disguise, and that is, like all other professions, there are men in our ranks who are addicted to habits of intemperance. I doubt whether we are, in any way, called upon to shield such men; on the contrary, I think we ought to afford them no protection whatever.

In an admirable address by Dr. Sheen, of Cardiff, in the *British Medical Journal*, he lays down five rules for the guidance of the medical profession, which it would be well for us to apply to ours. They are as follows :—

1. We should recognise the fact that we are a body of gentlemen, and should always act as gentlemen towards each other.
2. We should hold it as an article of faith to do what we conscientiously believe to be right, and in arriving at this belief we should be careful not to allow bias or feeling to influence our judgment. In reviewing any particular circumstances, we may, with advantage, ask ourselves the question, "What should I think the right thing to be done if our positions were reversed?"
3. If we should feel aggrieved at something done by a brother practitioner, and correspondence with him seem necessary, by all means let us write courteously, and not begging the question or indulging in language which we may afterwards regret, or which may call forth an angry rejoinder—

"Stay,
And let your reason with your choler question
What you go about ;"

and, above all things, let us refrain from sending our correspondence to the papers for publication.

4. If in any differences which may arise between any two of us, we cannot amicably settle the matter, let us, by mutual consent, submit it to the Branch Council of the Association, or to two or three trusted friends, with the understanding that we loyally abide by their decision.

5. If we are in the wrong, let us not be ashamed to acknowledge it.

And now to conclude with a few remarks anent our own association. Something was said, some time ago, about amalgamating with the Lancashire Association. I sincerely hope and trust that that day may be very far off indeed. It would be a thousand pities for this, the second oldest association in the kingdom, to become extinct by amalgamation with any other, or from want of support by the veterinary surgeons of Liverpool and neighbourhood. It is lamentable to think that so many members of the profession keep aloof from the society, and I feel sure if they only knew how much they lose by not joining it they would soon be with us. Let me entreat you, individually and collectively, to do your utmost to make this society a power in the land. Do not let it go forth that the influence of this society is on the wane. Let each one do his utmost to induce others to become members, and to bring back those who have forsaken the society.

Gentlemen, I have been associated with you for the last nine years, during which time I have had the pleasure of making many friends amongst you ; and I regret to say that the time has arrived when, owing to the long distance I reside from here, it becomes necessary for me to sever my connection with the society. Although I may not be a member, I shall not cease to take as lively an interest in its well-being as I have hitherto done, and never shall I forget the pleasures I have had in attending its meetings and the benefits I have derived therefrom.

EDWARD KITCHIN, *Hon. Sec.*

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY.

A GENERAL meeting of the above society was held in the Blackfriars Hotel, Manchester, on 9th September, the President, Mr. P. Taylor, in the chair.

Letters of apology from a number of members were read, after which the President, in a very able and lucid manner, congratulated the members on

the fact that the society had now completed its twentieth year, and gave a *résumé* of its work in the past and its prospects in the future.

From the reports of the Treasurer and Secretary, it appeared the society has defended or arranged some forty cases, at an expense of, in round numbers, £300; expended on benevolence, £150; working expenses for twenty years, £50; while the balance in hand is upwards of £2,400.

Several important alterations in the rules were then considered and agreed to, copies of which may be had from the Secretary.

The officers were then re-elected, as well as the Council, Messrs. J. M. Axe, T. Briggs, and S. Locke having been elected to fill three vacancies.

A vote of thanks to the President for his services in the chair terminated the proceedings.

GEORGE MORGAN, *Hon. Sec.*

PROCEEDINGS OF THE THIRD GENERAL MEETING

OF THE

NATIONAL VETERINARY ASSOCIATION,

HELD AT THE MEDICAL INSTITUTE, EDMUND STREET, BIRMINGHAM,

ON TUESDAY AND WEDNESDAY, AUGUST 4TH AND 5TH, 1885.

The President (HARRY OLVER, ESQ., F.R.C.V.S.) occupied the chair.

The members present were:—Messrs. Wm. Anderson, Glasgow; Professor J. W. Axe, London; J. D. Barford, Southampton; F. W. Barling, Ross; C. J. Barnes, Cheadle; R. Beart, Birmingham; E. Beddard, Wolverhampton; J. Bell, Carlisle; F. Blakeway, Stourbridge; Hy. Blunt, Lutterworth; T. Briggs, Bury; W. Carless, Stafford; H. J. Cartwright, Wolverhampton; T. Chambers, Dudley; H. Collett, West Bromwich; J. G. Cross, Mardol; W. Dale, Coventry; E. Faulkner, Manchester; Hugh Ferguson, Warrington; Sir F. Fitzwygram, Bart.; T. Fletcher, Sheffield; A. L. Gibson, Birmingham; T. Greaves, Manchester; A. Green, Dudley; O. Hills, Leamington; T. Hopkin, Manchester; T. Horton, Warwick; J. Howell, Rochdale; W. Hunting, London; J. S. Hurndall, Liverpool; F. J. Insall, Coleshill; R. C. Irving, Birmingham; W. C. Ison, Atherstone; H. Kidd, Hungerford; A. Leather, Liverpool; S. Locke, Manchester; A. Macadam, Tamworth; Professor J. Macqueen, Glasgow; C. Moir, Cardiff; W. J. Mulvey, Bishop Auckland; T. Olver, Truro; A. Over, Rugby; J. M. Parker, Birmingham; H. R. Perrins, Worcester; E. Price, Jun., Birmingham; W. Pritchard, London; J. H. Reynolds, Daventry; R. Roberts, Kendall; Arch. Robinson, Greenock; James Rowe, London; T. Runciman, Market Deeping; B. H. Russell, Grantham; R. Rutherford, Edinburgh; H. L. Simpson, Windsor; J. F. Simpson, Maidenhead; H. M. Stanley, Birmingham; Mark Tailby, Birmingham; R. C. Trigger, Newcastle-under-Lyne; H. Tweedley, Glasgow; J. B. Unsworth, Market Drayton; P. Walker, Bradford; Professor T. Walley, Edinburgh; J. Welsby, Liverpool; W. Whittle, Worsley; John Wiggins, Market Harboro'; Professor W. Williams, Edinburgh; J. B. Wolstenholme, Manchester; W. Woods, Junr., Wigan; F. W. Wragg, London, *Treasurer*; J. Malcolm, Birmingham, *Local Secretary*; and G. A. Banham, Cambridge, *General Secretary*.

There were also present as visitors:—Messrs. J. D. Allman, T. D. Arnfield, J. Attwood, T. H. Bartlett, M.B.; G. Boulton, Wolstanton; A. L. Butters, J. Clayworth, G. A. Drewe, J. Farndale, C.C., Birmingham; F. Fletcher, Coventry; A. B. Forsyth, Cannock; S. Gamgee, F.R.C.S., President of the Midland Medical Institute; F. C. Goldin, Rugby; A. Hill, M.D., Medical Officer of Health, Birmingham; C. H. Huish, H. Jordan,

J. Mauley, West Bromwich ; J. McGavin, Montgomery ; T. J. Merrick, G. Naples, Birmingham ; A. Oakes, Lloyd Owen, Lawley Parker, Councilman, Birmingham ; G. F. Prickett, Edgbaston ; F. Forster Rolfe, —. Saundley, M.D. ; W. Shipley, Jun. ; J. V. Solomoy, F.R.C.S. ; Lawson Tail, F.R.C.S. ; —. Tempest ; —. Underhill, M.D., Mayor, West Bromwich ; —. Valentine, Chief Inspector of Stock, Australia ; F. Warmington, Shrewley.

Apologies for non-attendance were received from the following members :— Messrs. W. Awde, W. F. Barrett, G. Bland, A. C. Cope, J. Roalfe Cox, President of the R.C.V.S. ; W. Duguid, Dr. G. Fleming, Principal Veterinary Surgeon, A.V.D. ; James Lambert, I.V.S., A.V.D. ; G. A. and H. G. Lepper, Professor J. McCall, A. J. MacCallum, E. Meek, J. D. Overed, H. Pritchard, Professor Robertson, W. A. Taylor, Hy. Thompson, J. P. S. Walker, Page Wallis, Joseph Woodger.

And also from the following visitors :—Viscount Newport, M.P. ; Sir A. Bass, M.P. ; Sir R. Peel, M.P. ; Mr. Albert Muntz, M.P. ; Mr. H. Wiggins, M.P. ; Alderman Avery, J.P. ; Captain J. W. Boulton, J.P. ; Mr. G. Dixon, J.P. ; Mr. J. Jaffrey, J.P. ; Mr. Foster, M.F.H. ; Dr. Burdon-Sanderson, F.R.S. ; Mr. Archer, F.R.C.S. ; Mr. D. Crompton, F.R.C.S. ; Mr. Oliver Pemberton, F.R.C.S. ; Mr. J. Bridge, Mr. Barling, Mr. T. W. Mayor, Mr. R. G. Verney, and Mr. W. A. Wilson.

FIRST DAY'S SITTING.

The PRESIDENT opened the third General Meeting of the Association by announcing the Council's suggestions upon the business to be considered at the meeting.

The following Report was then received and adopted by the meeting.

SECRETARY'S REPORT FOR 1885, IN ACCORDANCE WITH RULE XLII.

Officers.

The officers elected at the last General Meeting, held at the Victoria University, Manchester, were the President-elect, a Life Vice-President, and six Members of the Council. The Treasurer and General Secretary were re-elected. The Vice-Presidents were left to be elected by the Council, and the Provisional Committee in the hands of Messrs. T. Greaves (President), H. Olver (President-elect), H. M. Stanley (President of the Midland V. M. S.), E. Beddard (Secretary of the M. V. M. S.), A. Over, H. R. Perrins, and R. C. Trigger.

The officers for the present year are as follows :—

President : Harry Olver, Esq., F.R.C.V.S.

Vice-Presidents : Dr. G. Fleming (life), Professor J. W. Axe (R.V.C., London), Mr. Tedbar Hopkin (Manchester), Mr. James Lambert (I.V.S., A.V.D.), Professor J. McCall, (Glasgow V.C.), Mr. H. L. Simpson (Windsor), Mr. H. M. Stanley (Birmingham).

The Council : 1. The President, Vice-Presidents, Treasurer, and General Secretary of the Association.

2. The Presidents and Secretaries of the existing Local Veterinary Medical Societies that are members of the Association :—

Mr. R. S. Barcham.
 „ E. Beddard.
 „ H. R. Bradshaw.
 „ Alf. Broad.
 „ W. Broughton.
 „ T. Campbell.
 „ J. Donald.
 „ G. Elphick

Mr. Colin Gresty.
 „ E. A. Hollingham.
 „ H. Kidd.
 „ Ed. Kitchin.
 Professor T. Lewis.
 Mr. S. Locke.
 „ J. W. T. Moore.
 „ John Malcolm.

Mr. J. B. Martin.
 Professor J. McQueen.
 Mr. J. M. Parker.
 „ W. Penhale.

Mr. J. E. Scrivan.
 „ T. H. Simcocks.
 „ J. J. Sperring.
 „ J. B. Wostenholme.

3. The Principals of the Veterinary Colleges :—

Professor J. McCall (Glasgow V.C.), Professor W. Robertson (R.V.C., London), Professor T. Walley (R.V.C., Edinburgh), W. Williams (N.V.C., Edinburgh).

4. Six members selected from various parts of the kingdom :—

Mr. Thos. Briggs.
 „ C. Cunningham.
 „ W. Dale.

Mr. T. D. Lambert.
 „ H. G. Lepper.
 Capt. B. H. Russell.

Treasurer : Mr. F. W. Wragg, London.

General Secretary : Mr. Geo. A. Banham, Cambridge.

Provisional Committee.

Mr. J. M. Parker, Birmingham,
Chairman.
 „ J. S. Barling, Ross.
 „ J. J. Barber, Rugby.
 „ F. Blakeway, Stourbridge.
 „ E. Beddard, Wolverhampton
 „ H. Blunt, Lutterford.
 „ T. Briggs, Bury.
 „ W. Carless, Stafford.
 „ H. J. Cartwright, Wolver-
 hampton.
 „ T. Chambers, Dudley.
 „ W. Dale, Coventry.
 „ O. J. Hills, Leamington.
 „ E. Meek, Walsall.

Mr. A. Over, Rugby.
 „ H. Pritchard, Wolverhamp-
 ton.
 „ H. R. Perrins, Worcester.
 „ E. Price, Birmingham.
 Capt. Russell, Grantham.
 Mr. H. M. Stanley, Birmingham.
 „ M. Tailby, Birmingham.
 „ W. A. Taylor, Manchester.
 „ R. C. Trigger, Newcastle, Staff
 „ J. Wiggins, Market Harboro'.
 „ T. Greaves,
 „ Harry Olver,
 „ F. W. Wragg,
 „ G. A. Banham, } *Ex-officio.*

J. Malcolm, Birmingham, *Hon. Local Secretary.*

The Provisional Committee decided that the General Meeting should extend over two days, and be held in July, 1885. It was, however, subsequently postponed until August, as the Highland and Agricultural Society held its Show during the only week in July the meeting could be held.

The Committee then selected two subjects for discussion, and proposed the names of the essayists for the Local Secretary to obtain their consent to act. At the following meeting the names of the gentlemen were proposed who should open the discussions.

The Provisional Committee have again been fortunate in obtaining suitable premises for our meeting ; mainly through the kind instrumentality of Mr. S. Gamgee, to whom the best thanks of the Association are due.

Professor S. Gamgee has also consented to deliver an address of welcome to the members of the Association.

The Provisional Committee decided that space should be provided for exhibiting specialities of drugs, instruments, etc., during the meeting.

The Provisional Committee have also made arrangements for holding a Social Gathering during the evening of the first day. Many of them wished this should be an Invitation Dinner, but this was opposed by others, as they considered it was establishing a precedent which would ultimately be detri-

mental to the welfare of the Association. Therefore, it was decided the dinner should be open to all who wished to attend.

The Provisional Committee have again (for the third year) thought it advisable to forward a circular to every Member of the Profession in Great Britain and Ireland, inviting them to join the Association and attend the meeting.*

The circular was as follows :—

Dear Sir,—The Meeting of the National Veterinary Association for 1885 will be held in the Birmingham Medical Institute, Edmund Street, Birmingham, on the 4th and 5th of August next. As subjects of great importance to the profession will be brought forward for discussion, the Provisional Committee have made arrangements for a large attendance, and as they are anxious that the gathering should be as representative of the profession as possible, they would be glad if you will become a member, if not already one, and give them the pleasure of your presence at that Meeting. The Annual Subscription to the Association is 10s. 6d.

Visitors may attend the Meetings and join in the discussions if they will send their names to either of the Secretaries, who will remit them a ticket of admission.

The papers on the subjects for discussion will be printed and distributed to each member of the Association at least ten days prior to the date of the Meeting. At the Meeting the papers will be taken as read and the discussion at once opened.

ORDER OF PROCEEDINGS.

FIRST DAY.

11 a.m.—Election of President and Officers of the Association, and selection of next place of Meeting.

12 noon.—The President of the Birmingham Medical Institute, Mr. SAMPSON GAMGEE, F.R.S.E., will give a short address of welcome to the Members. The President will then deliver his inaugural address.

2 p.m.—Mr. RUTHERFORD will open the discussion on Mr. McGillivray's paper on "Epizootic Pleuro-Pneumonia."

SECOND DAY.

10.30 a.m.—Professor AXE will open the discussion on Gen. Sir F. Fitzwygram's paper on "The Origin of Disease."

Specimens and subjects of importance may be introduced if time should permit, fourteen days' previous notice having been given to the President.

Samples of Drugs, Instruments, etc., as used in Veterinary Practice will be on Exhibition in an adjoining room.

Luncheon may be obtained at the Grand Hotel each day from 1 to 2 o'clock. At six p.m. on the first day of meeting a Dinner will be provided at the Grand Hotel, open to both members and visitors, tickets 10s. 6d. each.

To facilitate arrangements an early reply is requested. We are, sir, yours truly,

JOHN MALCOLM, *Holiday Street, Birmingham.*

GEO. A. BANHAM, *Downing Street, Cambridge.*

Since the above circular was issued we have been compelled to alter our Agenda, and we think it only fair to the Members of the Association to call their attention to it. It was announced that Mr. MacGillivray would write the

* The General Secretary wishes to apologise to the Scotch and Irish Members of the profession for the mistake which was made, of sealing down the corner of the circular sent to them, whereby they were charged on its delivery.

paper on Pleuro-Pneumonia, but when he was applied to for it (by your Secretary) for the press, he wrote to say that as he had nothing original to say upon the subject, he could not undertake to fulfil the promise he had made to the Provisional Committee last November. This announcement greatly perplexed the Committee, as Mr. MacGillivray had not given them time to apply to any one else to take up the subject. However, your local Secretary started off to Edinburgh and placed the circumstance before Professor Walley, who at once complied with his request to furnish us with a paper on the subject of Pleuro-Pneumonia, for which the Provisional Committee beg to tender their thanks. Consequently, the Provisional Committee ask the Members of the Association to take into consideration the circumstances under which Professor Walley has placed the subject before them, and to overlook any portion of it they may think falls short of their expectations.

We also wish to impress upon all those who promise the Committee in future to prepare papers for discussion at the meetings to give them time to apply to others, if they find they are unable to fulfil their promise.

The following is the amended list of subjects to be considered :—

FIRST DAY.

Subject I.—"Pleuro-Pneumonia Contagiosa," written by Professor T. Walley. The discussion to be opened by Mr. R. Rutherford, and if time permits Professor Walley will open a discussion on "Swine Fever."

SECOND DAY.

Subject II.—"The Origin of Disease," written by Sir F. Fitzwygram. The discussion to be opened by Professor J. W. Axe, and if time permits Mr. Kidd will open a discussion upon "Clause 9 of the Supplementary Charter of 1876."

The meeting has also been advertised in the professional journals.

RULES.

The Provisional Committee have also undertaken to revise the Rules, as they were out of print.

A copy of the Amended Rules have been forwarded to each Member for their approval or otherwise at the General Meeting.

The following is a list of the alterations :—

AMENDED RULES.

Rule xxix.—The President shall be elected at the General Meeting previous to the first day of January of the next year, on which date he will enter upon the duties of his office. During the interval he shall bear the title of President-elect.

Rule xxxv.—In addition to Life Vice-Presidents there shall be six others nominated by the Council from the Members of the Association and elected at the General Meeting.

OLD RULES.

Rule xxix.—The President shall be elected at the General Meeting previous to that upon which he will enter upon the duties of the office, until which time he shall bear the title of President-elect.

Rule xxxv.—In addition to the Life Vice-Presidents there shall be six others elected by the Council from the Members of the Association residing in various parts of the kingdom.

AMENDED RULES.

Rule xxxvi. 1. The President, President - elect, Vice - Presidents, Treasurer, and General Secretary of the Association.

Rule xxxvii.—The Council shall manage the affairs and business of the Association, and shall nominate the President-elect, Vice-Presidents, Treasurer, and General Secretary for election at the General Meeting.

Rule xlii.—The General Secretary (or Secretaries) shall prepare a Report of the general state and proceedings of the Association for the current year, to be presented by him at the following General Meeting.

Rule xliii.—At each General Meeting the Council shall propose the place for the following General Meeting, nominate the names of the President, Vice-Presidents, Treasurer, and General Secretary, and also decide how the Provisional Committee shall be elected.

Rule xlv.—A Treasurer shall be nominated by the Council and elected at the General Meeting.

Rule li.—The General Secretary (or Secretaries) shall be nominated by the Council, and elected at the General Meeting.

MAJOR SUBJECTS.

Rule lxii.—These shall be upon Veterinary matters (subject to Rule 61) brought before the meeting in the form of a written paper or verbal address; upon which the Members will be invited to discuss.

MINOR SUBJECTS.

Rule lxiii.—These shall be merely questions submitted to the vote of the meeting by Members of the Association (subject to Rule 61), and upon which no discussion shall take place.

OLD RULES.

Rule xxxvi. 1. The President, President-elect, Treasurer, and General Secretary of the Association.

Rule xxxvii.—The Council shall manage the affairs and business of the Association.

Rule xlii.—The Council shall prepare a Report of the general state and proceedings of the Association for the current year, to be presented by them at the following General Meeting.

Rule xliii.—At each General Meeting the Council shall propose the place for the following General Meeting, nominate the President-elect, and elect the Provisional Committee.

Rule xlv.—A Treasurer shall be elected by the Council.

Rule li.—The Secretary (or Secretaries) shall be elected by the Council.

(To be continued.)

Army Veterinary Department.

Operations in the Soudan having ceased, and the troops there and in Egypt having been largely withdrawn, a large number of the veterinary officers employed have returned to England. The following however remain in these countries : C. Phillips (First Class), Senior in charge at Cairo ; G. J. R. Rayment (First Class), at Suakin ; W. B. Spooner (First Class) ; T. A. Mitchell, C. A. Betser, H. Haslam, J. Dundon, T. Taylor.

In his last dispatch relative to the operations at Suakin, Lieut.-General Sir G. Graham, K.C.B., commanding the troops in the Eastern Soudan, says : "Principal Veterinary Surgeon W. B. Walters administered his department with ability, and his officers satisfactorily attended to the sick horses and transport animals."

In his final Soudan dispatch, Lord Wolseley, in alluding to the administration of the various departments during the recent campaign, states that "Veterinary Surgeons Walters and Burt well performed the work that fell to them;" and in the list of officers whose services are deserving of special mention, he names Inspecting Veterinary Surgeon W. B. Walters and Veterinary Surgeons (First Class) W. Burt, C. Phillips, and A. E. Queripel. In the *Gazette*, August 25th, containing the promotions for the Soudan, Veterinary Surgeons A. E. Queripel and C. Phillips are promoted to First Class, ranking with Major.

Obituary.

We regret to record the death of Henry Watson Allison, M.R.C.V.S., Long Benton, near Newcastle-upon-Tyne, who died from Diabetes, at Harrogate, on the 26th August, aged 61 years. He graduated in 1850, and only relinquished, very reluctantly, the practice of his profession last year.

The death of the following members is also reported : Joseph Gibbs, Staple Grove, Taunton, aged 76 years ; John Crockett, Dundee ; and John Weston, Notts.

Notes and News.

DOCKING.—Doctors will disagree, to a proverb, but for an out-and-out wrangle nothing can beat the veterinary profession, and a case in point occurred at the second general meeting of the National Veterinary Association. The subject was that of docking horses, and the question at issue was whether the operation is a *necessary* one, because if it is necessary it cannot be called cruelty. Dr. Fleming and Professor Pritchard spoke very earnestly against the practice ; they do not say that docking is never necessary, but they say that as a rule it is not necessary, that it serves no useful purpose, and that therefore it is cruel. Professor Axe, Professor Williams, and a host of lesser lights say that docking *is* necessary often, that it does serve a useful purpose, and that therefore it is *not* cruelty. And so the matter rests. It is pretty sure, however, that Mr. Colam, on behalf of the Society for the Prevention of Cruelty to Animals, will prosecute any veterinary surgeon for performing the operation without any apparent necessity for it, and the law will have to decide whether docking is or is not cruelty to animals. Professor Pritchard declares that a horse is much less likely to get its tail over the reins if it is not docked. Professor Axe says it is not a question of getting the tail over the reins, but of getting the reins from under the tail, and, therefore, the shorter the tail the more easily the reins can be got away. Professor Pritchard says the dock is always tender. Professor Axe says that "as a matter of fact,

when a horse has been docked, the cicatrice at the end of the tail never afterwards has the physiological sensibility peculiar to the undocked tail." Professor Williams says that docking is not cruelty; "some little pain is inflicted but it causes the animal little or no inconvenience." Dr. Fleming says, "Let those gentlemen who say that this is a painless operation *undergo it themselves*." Capital idea that, only Mr. Colam would be down upon them, probably. Considering that the tail in man is but rudimentary, the amputation or excision of the *os coccygis* would doubtless be considered by the Society for the Prevention of Cruelty to Animals as an unnecessary infliction of pain, and dealt with accordingly. We agree with Dr. Fleming and Professor Pritchard that, outside certain special cases, the art of docking horses serves no useful purpose, and that it is, therefore, an unnecessary infliction of pain—an act of cruelty.—*Mark Lane Express*, Aug. 24.

PRESENTATION.—Recently, a handsome acknowledgment of service rendered was made to T. Hurford, retired Army Inspecting Veterinary Surgeon, by the Royal Artillery at Woolwich, to the officers of which he has, since his retirement, made himself agreeable and useful. The recognition consisted of a purse, and a handsome silver salver on which was the following inscription: "Presented, with a purse of 200 sovereigns, by the officers of the Royal Artillery, to their friend, Thomas Hurford, Esq., in acknowledgment of the many kindly services rendered to them in connection with their cricket, racquet, and lawn-tennis clubs. May, 1885."

HORSES IN IRELAND.—According to the agricultural returns, the number of horses in Ireland in the years 1884 and 1885 was 547,132 against 534,797 in the years preceding. Of those two years old and upwards 362,739 were kept for agricultural purposes, 30,807 for traffic and manufactures, and 25,178 for amusement or recreation. There were 64,978 one year old and under two years old, and 63,430 under one year old. Of the total number of horses, 171,504 were in the province of Leinster, 138,383 in Munster, 68,744 in Connaught, and 168,501 in Ulster.

EXPORTATION AND IMPORTATION OF HORSES.—During the month of August we exported 891 horses to foreign countries, against 1,052 in the same month last year. Their value was £50,103, compared with £91,614 last year. Of the number, 326 went to Belgium, 90 to France, 15 to the United States, 279 to British North America, and 181 to other countries. For the first eight months of this year we have exported 4,389 horses, at a value of £254,863, against 5,172, at a value of £309,339 last year. We have in August imported 2,719 horses, against 1,551 last year, their value being £21,435 against £17,809. During the first eight months of the year we imported 10,662 horses, valued at £145,471, against 9,545, valued at £187,778, in the corresponding period of last year.

SIBERIAN PLAGUE.—Siberian plague, affecting alike both men and the lower animals, is reported to have made its appearance in the neighbourhood of Odessa. Its destructive effects are more feared than rinderpest among cattle or cholera among men.

CIVIL VETERINARY DEPARTMENT IN INDIA.—The details of the new Civil Veterinary Department for India are still under consideration. A committee, consisting of Mr. Buck, with Colonel Wace, Mr. D. Smeaton, and Mr. Fuller, as Directors of Agriculture in the Punjab, North-West and Central Provinces respectively, met recently at Simla, to decide what final proposals regarding the Civil Veterinary Department should be placed before the local Government for consideration. The Allahabad paper believes that some more positive steps will be adopted for the formation of a Civil Veterinary Department in every province in India, and that the military authorities will lend, at any rate while the country is free from war, a certain number of veterinary officers to superintend provincial operations.

Correspondence.

CARDIAC SOUNDS.

DEAR SIR,—I trust you will kindly allow me space to attest the veracity of certain remarks made by my pupil, Mr. Shawcross, regarding cardiac and pericardial disease in the horse, which have been condemned in the August number of the *Veterinarian*. Although the critic, Mr. Richards, asserts that he is quite prepared to have a lot of scornful remarks heaped upon himself, it is not with the slightest intention of making scornful remarks, he evidently so justly expects, that I take up my pen to vindicate truth. The first scathing condemnation is put by the critic in the form of a question—"Now," he asks, "how can an aortic disease be double, as I do not think we ever find a double aorta connected with the left ventricle?" This question is easily answered: by a double aortic murmur we understand a systolic and a diastolic one, co-existent, as they are frequently in the horse. The case referred to was one of the double kind—the obstructive or systolic, and the regurgitant or diastolic, murmur. The critic evidently does not understand the meaning of the term double, and thinks that it refers to a double aorta. Each orifice of the heart may have a double murmur, and this is most frequent in the horse, in the case of the aorta. The critic then says, "if the disease was aortic, the murmur must have been single, and of considerable intensity to be heard," etc. The answer to this observation is that the murmur *was double*, as it must always be where there is stenosis of the aortic orifice, in addition to the disease of the semilunar valves, allowing of the regurgitation of blood into the left ventricle. It was not denied—it was not even hinted—that the murmur was not of great intensity.

"Why were not pathological details given?" asks the critic. The animal died after sending off the MS., and in the proof not much could be appended. Any details required can be given. With reference to the third case, it is complained that Mr. Shawcross does not say how he diagnosed the complaint or the arsenical poisoning. The poisoning was confessed to by the attendant, and the special lesions of the heart which were referred to were found at the autopsy.

The critic tells us that he was not aware that arsenical poisoning was ever associated with disease of the mitral orifice and Endocarditis. Is he unwilling to learn when he is ignorant of facts? or is he unwilling to believe? If so, how can he be answered? The fact is that acute arsenical poisoning is sometimes attended by acute inflammation of the endocardium and mitral valves. I have recorded many cases of this kind. The critic complains that the fourth case is insufficiently described. Further details can be given if necessary. In the fifth case, he says "he *infers* that the case recovered." Does he wish to be funny? for Mr. Shawcross himself writes that the case gradually made a good recovery. The critic says the *post-mortem* examination is not recorded. It is not usual to record *post-mortem* examinations in cases notified as having recovered and being still alive. With reference to the diagram, the seats and directions of the murmurs are copied from an original drawing, as stated, in order to show their position in relation to the chest-walls. Mr. Shawcross did not deem it necessary for his purpose to copy accurately all the other bones of the body. I blush for shame when I think of searchers after comparative pathology in the pages of our journals, finding that one member of our profession has to be taught by my pupil the meaning of such a term as "Double Aortic Disease," and also that heart murmurs are sometimes heard a long distance from the point of their origin. The critic advises Mr. Shawcross to give more details in future, "so that others of less ability than himself may profit by the reading of his cases." In an-

swer to this, I think no pupil would ever believe that individuals so deficient in knowledge as not to know the meaning of the term "Double Aortic Disease" would expect to be taught the elements of the veterinary profession. The critic must also be informed that sometimes aortic murmurs in the horse are heard at a distance of three or four feet, or more, from the points of origin. In conclusion, the remarks of Mr. Richards simply show how necessary is extensive practical experience for those who undertake to write. When any one states that he is not aware that such and such things happen in some cases of arsenical poisoning, he simply expresses his unwillingness to believe the record of those who have had many such instances under observation.

Louth.

J. BRODIE GRESSWELL.

THE PROFESSION IN NEW SOUTH WALES.

DEAR SIR,—I shall be glad if you can inform me, through the medium of your Journal, what prospects there are for members of the profession in New South Wales, or any of the Australian Colonies, and whether emigration is, in the case of an energetic man having high qualifications, likely to be a successful venture? And, further, are any of the Government or army appointments obtainable by English veterinary surgeons?

As far as I can learn, there is, at present, no veterinary college established in Australia. If so, might not a mention of this fact by some influential person to Lord Carrington now, just prior to his departure, be attended with some good result in advancing the interest of the profession abroad? Apologising for troubling you,

W. F. S.

[Can any of our readers supply the desired information?]

UNPROFESSIONAL ADVERTISING.

SIR,—Under this heading, Mr. Robert Laidlaw, of Albany, N.Y., makes some inquiries respecting Mr. Edward Moore, also of Albany, N.Y., in your last month's issue.

Being in a position to answer his inquiries, may I submit to him the following statement through the medium of your Journal?

Mr. Edward Moore, a graduate of 1877, was Cattle Plague Inspector for the British Government during a portion of that year.

Cattle Plague—at least a disease declared to be such by all veterinary surgeons who saw it at that time—appeared at Limehouse in 1877, and rapidly spread to large herds in and around London. The disease, promptly recognised by the heads of the veterinary department of the Government, gained no hold on the country, owing to the measures, perfect both in conception and detail, adopted by that department. Among those measures was the selection of twelve gentlemen, recently graduated, to carry out instructions from head-quarters.

These instructions were framed with a view to detect, isolate, and stamp out the disease.

So well was this done, that in eleven weeks from their appointment the country was free from the disease. I was constantly in contact with Mr. Edward Moore during the period as a fellow-inspector. I know he saw cases of the disease, and in one place diagnosed it, and effectually superintended the stamping out process.

Mr. R. Laidlaw considers it strange that the British Government should appoint an inexperienced American student in preference to its own practical qualified men.

As a fact, they did nothing of the kind ; they appointed, among others, Mr. Edward Moore, a member of the Royal College of Veterinary Surgeons of Great Britain, and therefore properly qualified, although this qualification has not always been held necessary by the department.

Mr. Edward Moore enjoyed the privilege of being the pupil of Professors Simmonds, Pritchard, Axe, and Brown ; he was never rejected at any examination ; and I think that his appointment ought to be considered a tribute to his ability, occurring, as it did, at a time when there was no dearth of candidates.

CHARLES SHEATHER, F.R.C.V.S.

SIR,—I can answer the question put by your correspondent, Mr. Robert Laidlaw, in the VETERINARY JOURNAL for September.

A Mr. Edward Moore, who graduated in 1877, was employed temporarily during that year as an Inspector of the Privy Council. Mr. Laidlaw is entirely wrong in stating that Cattle Plague has not been in England since 1866 ; the disease was re-introduced in 1872, and again in 1877. I may add that Mr. Moore and eleven other gentlemen who were appointed as temporary Inspectors in 1877 acted entirely under the direction of Prof. Brown and myself.—Yours truly,

London, *Sept. 7th.*

ALEX. C. COPE.

ADVERTISING.

DEAR SIR,—I beg to hand you copy of an advertisement from the Dublin *Evening Telegraph* of yesterday's date :—

JAMES CROZIER,
VETERINARY SURGEON,
ELLISS'S QUAY,
Examined for Diploma R.C.V.S.,
Qualified by Examination in
ANATOMY, BOTANY, CHEMISTRY, AND
MEDICINE.
Horses Shod and Examined. Terms Reasonable.

I must state that never, to my knowledge, have I seen Mr. Crozier, but I find, on referring to the register, that his name appears amongst the "Registered Practitioners." I am informed that he was a farrier in the Royal Irish Constabulary in the depot at Phoenix Park. He may be, for aught I know, a most estimable *farrier* ; but that he should be permitted to issue such an advertisement as the above without coming under the penal clause (No. 16) of the Veterinary Surgeons Act, 1881, would appear to me to be an impossibility. If such advertisements can be used by persons who hold no diploma, then I say the Act is inoperative, and should be forthwith repealed. It is to be deplored that the public are not yet sufficiently educated in what constitutes a legally-qualified member of the college, and therefore the most superficial observer can see at once how such announcements as these may deceive those who read them, place their authors in a position to which they are not entitled ; and by so doing prejudice the qualified members and fellows of the College in their rightful status and dignity.—Your obedient servant,

J. J. SPERRING, F.R.C.V.S.,

Hon. Sec. Irish Central Veterinary Medical Society.

Dublin, *September 2nd, 1885.*

[The person referred to has not made any misstatement in his advertisement. He studied at the Glasgow Veterinary College, and passed the first and second examinations of the Royal College, but failed to pass that for the diploma, for which he was examined on two or three occasions. He had been for at least five years in practice before the passing of the Veterinary Surgeons Act, and was highly recommended for registration by one of the oldest and most respected members of the profession in Ireland.]

CURTAILING HORSES OF THEIR FAIR PROPORTIONS.

SIR,—In reading the report of the National Veterinary Congress and the remarks offered on docking, I could not believe my eyes until I had wiped my spectacles very carefully, and replaced them upon the professional nose. I do not propose to occupy your space by questioning the pain inflicted in the operation or subsequently, but to call attention to the remarkable statement made by Professor Pritchard, and supported by Dr. Fleming—that a docked horse is more likely to get his tail over the reins than one that has not been shortened! I could understand this if drivers were in the habit of laying the reins along the crupper; then a short dock might catch them; but good, bad, and indifferent coachmen, as a rule, have some sort of touch, or “feel” the animal’s mouth, and most vehicles have a dashboard or other appliance to raise the reins above the level of the horse’s back, and if it is admitted that the reins are usually carried a foot above the anus, it is a mathematical impossibility to prove that a six-inch dock is more likely to be thrown over the reins than an eighteen-inch rudder. I bought a mare the other day with a dock eighteen inches long, and she was sold by an innkeeper for no other reason than this—he could not let her a second time to any one, because every time she was touched with the whip she swirled round her tail from whichever side she was stimulated, and caught the reins; the result being she would pull off to one side of the road or *into* another vehicle. She had no vice, but was useless for letting out on this account.

I took ten inches off this offending member, with the result that she can now be driven with comfort, and the innkeeper would be glad to buy her back again.

I have owned some hundreds of horses, and out of that number I have not seen more than half-a-dozen where the necessity for docking existed; but I maintain that there are some horses that are absolutely dangerous to drive on account of their tails, as well as a perfect misery to sit behind.

A country practitioner necessarily feels a great deal of diffidence in challenging the opinion of such men as Professor Pritchard, but it requires more even than the statement of a learned professor to convince one that an eight-inch dock will reach further than an eighteen; to my bucolic mind it is equivalent to saying that eight pence have more purchasing power than eighteen pence.

It is much to be regretted that any one should have suggested such an unworthy motive for the continuance of docking as the paltry remuneration for the work; if we allow such matters to be introduced into our discussions, we shall sink to the level of the taproom, instead of elevating our profession to the championship of domesticated animals.

I fear that most practitioners will have to endorse a good deal of what Mr. Briggs has said as to the persecution of cabdrivers and others rather than the prevention of cruelty by judicious admonition. I have had many such cases, and often lost valuable time in bringing about a reconciliation between the society’s officers and the supposed offenders.

Only two or three weeks ago, I was asked to see an entire horse in a cab;

he was crooked in front and no longer good-looking enough for the owners of mares to fancy him; but he was well kept and fit for work despite his deformity, and a kindly explanation to the society's officer was sufficient to put an end to a smouldering quarrel. The officers had reason to suppose the horse wasn't up to the mark, and the driver had equally good reason for knowing that he was quite fit for work; and it is in such cases we, as veterinary surgeons, should assist the society and prevent persecutions by a little sacrifice of our own time, and without thinking of a fee. It cannot be expected that the R.S.P.C.A. can obtain men with the impartiality of a judge, the professional acumen of a veterinary surgeon, and the legal ability of a lawyer; yet they have to act the part of each, or try to do so, and it is not surprising that they often fail. Then, again, the officer is not allowed to act entirely upon his own judgment, but submits a report to Mr. Colam, who has to adjudicate *in absentia*, and the officer who finds himself committed to a prosecution too often shows an excess of zeal in trying to bring the case to a successful issue. As an old friend of the society I can see its faults as well as those who have had less to do with it; and though I know that Mr. Colam gets through an almost superhuman amount of work, it is impossible that he can sift each case at a preliminary examination like a person with half his capacity could do on the spot.

In conclusion, I would ask my professional brethren to maintain their right to be the best judges of what is and what is not cruelty, while affording the R.S.P.C.A. every assistance in its legitimate efforts to suppress cruelty, according to Professor Axe's definition of it.

East Grinstead, Sussex.

HAROLD LEENEY, M.R.C.V.S.

AN APPEAL TO THE VETERINARY PROFESSION.

SIR,—The appeal made by circular and in the VETERINARY JOURNAL for September has been responded to by the following kind and benevolent gentlemen, members of our profession, to whom my own and Mrs. Bowles's best thanks are given:—

	£	s.	d.		£	s.	d.
Mr. J. F. Simpson, Maidenhead	0	10	0	Amount brought forward	15	6	0
„ H. L. Simpson, Windsor	0	10	0	Mr. S. Hurndall, Liverpool	1	1	0
„ Roalfe Cox, London	1	1	0	„ H. Kidd, Hungerford	0	5	0
„ W. J. Mulvey, Bishop Auckland	0	10	0	„ R. E. L. Penhale, Hatherleigh	0	5	0
Professor Duguid, London	1	0	0	„ Saml. Locke, Manchester	0	10	6
Mr. H. J. Cartwright, Wolverhampton	0	10	0	„ Wm. Ridgman, Liscard	0	5	0
„ Wm. Whittle, Worsley	1	0	0	„ John Bell, Carlisle	0	10	6
„ T. Greaves, Manchester	1	1	0	„ Hy. Paradise, Dursley	0	10	0
„ J. H. Welsby, West Derby	1	1	0	„ Thos. Barker, London	1	1	0
Captain Russell, Grantham	1	0	0	„ J. Donald, Wigton	0	5	0
Mr. E. Price, Birmingham	0	10	0	„ T. W. Wragg, London	1	1	0
„ J. M. Parker, do.	0	10	6	„ J. Blunsome, Cirencester	1	0	0
„ G. E. Drew, Abingdon	0	10	6	„ E. Faulkner, Manchester	0	10	0
„ E. Nuttall, Preston	0	10	0	„ J. H. Briars, Sheffield	0	10	0
„ Peter Taylor, Manchester	1	0	0	„ T. A. Frost, Hounslow	1	0	0
„ Charles Elam, Liverpool	2	2	0	„ J. W. Anderton, Skipton	0	7	6
„ W. E. Litt, Shrewsbury	0	10	0	„ Wm. Broughton, Leeds	0	10	0
„ W. Hardcastle, Ely	1	0	0	„ Mrs. Sprague and Mr. A. Caudle, Kimbolton	0	10	0
„ E. Kitchen, Liverpool	0	10	0				
Carried forward	£15	6	0	Total	£25	7	6

On the 12th of August I sent £10. £4 of this has been paid for rent, £1 for sheets, etc., £2 for food, and £3 still in hand to last six weeks more. The balance of £15 odd I have arranged to send £1 every fortnight. Yes—

terday I spent half an hour with the old lady. She is eighty-three years old, has been bedridden for nearly seventeen years, paralysed of her limbs; her only son at home is hopelessly paralysed in right arm and right leg. Receiving 1s. 6d. per week, and half a stone of flour per week from the parish. The old lady is not in any suffering, is contented and resigned, but in great poverty, having been left penniless. This is a case that must enlist our sympathies, and most cordially do I emphasize Mr. Hardcastle's statement. viz., "I have no hesitation in saying any help would be charity well applied, and sadly, most sadly, needed."

Here is a lamentable instance of the neglect of not securing a reasonable competence for those dependent upon us, by joining the National Veterinary Benevolent Society. Oh, how deplorably sad it is if we are unfortunately snatched away by death, leaving those we love in destitute circumstances. Again I invite and strongly urge all members of the profession, for their own good, to join this excellent benevolent society.

Knott Mill, Manchester, *Sept. 14th*, 1885.

THOMAS GREAVES.

CORRECTION.

IN Mr. Cunningham's letter in our last issue, in page 230, for "Scotland is the minority" read "Scotland is in the minority"; and in page 231, for "favouring members" read "favouring numbers."

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from H. Leeney, East Grinstead; J. Nettleton, Northallerton; R. W. Burke, A.V.D., Cawnpore; J. Hunter, Skene; J. Lambert, A.V.D., Woolwich; J. Mills, A.V.S., Madras; G. A. Banham, Cambridge; F. F. Collins, Dublin; R. H. Dyer; A. C. Cope, London; Dr. O. Larcher, Paris; W. F. Smith, Downham Market; G. Morgan, Liverpool; W. Broughton, Leeds; C. Sheather, London; C. Cunningham, Slateford; F. Smith, A.V.D., Woolwich; T. Greaves, Manchester; J. J. Sperring, Dublin; A. W. Hill, London; C. Gresty, Newcastle-on-Tyne; R. T. Richardson, Long Benton; D. C. Pallin, A.V.D., Dublin; J. Brodie Gresswell, Louth; E. Kitchen, Liverpool.

BOOKS AND PAMPHLETS: *J. Mills*, Indian Stock-Owner's Manual; *J. W. Hill*, The Diseases of Poultry; *J. B. Gresswell*, Veterinary Pharmacology and Therapeutics; *A. Lydtin*, Ueber die Perlsucht; *U. Caparini*, Importanza del Microscopio nell' Esercizio Pratico della Medicina Veterinaria; *U. Caparini*, La Cura del Farcino, o Mal del Verme; *G. S. Woodhead, M.D., and A. W. Hare, M.B.*, Pathological Mycology; *O. Larcher, M.D.*, La Pathologie Comparée, La Goutte des Oiseaux comparée à celle de l'Homme; *E. Hermann*, Die Vererbung von Pathologischen Zuständen Psychischen Mängeln und Fehlern der Form beim Pferde; *Annuario d. R. Scuola Superiore di Medicina Veterinaria di Milano*, 1885; *A. Zundel*, Der Gesundheitsstand der Hausthiere in Elsass-Lothringen.

JOURNALS, ETC.: *Journal of the Agricultural Students' Association (Madras)*; *La Villa*; *Archiv für Wissenschaftliche und Praktische Thierheilkunde*; *Revista Popular de la Exposicion Rural*; *Revista Argentina de Ciencias Medicas*; *Journal of Comparative Medicine and Surgery*; *Der Hufschmied*; *Recueil de Médecine Vétérinaire*; *Wochenschrift für Thierheilkunde*; *British and Colonial Druggist*; *Live Stock Journal*; *Clinica Veterinaria*; *Edinburgh Medical Journal*; *Kansas Live Stock Indicator*; *Chicago Live Stock Journal*; *Österreichische Vierteljahresschrift für Wissenschaftliche*; *Repertorium für Thierheilkunde*; *Zeitschrift für Vergleichende Augenheilkunde*; *Animal World*; *British Medical Journal*; *Mark Lane Express*; *Centralblatt für Chirurgie*; *Tidschrift für Veterinar-Medicin*; *American Veterinary Review*.

NEWSPAPERS: *Norwich People's Weekly Journal*; *Madras Mail*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

NOVEMBER, 1885.

ACTINOMYCOSIS.

BY J. BRODIE GRESSWELL, M.R.C.V.S., LOUTH, JOINT AUTHOR OF "THE MANUAL OF THE THEORY AND PRACTICE OF EQUINE MEDICINE," AUTHOR OF "THE VETERINARY PHARMACOLOGY AND THERAPEUTICS."

IT is my purpose to describe in detail a marked case of Actinomycosis treated by a method which I have found to be in a high degree successful. This case was one of a two-and-a-half-year-old red bullock, the property of Mr. J. S. Mawer, of Louth, who had kept and fed him at Welton.

On the 27th December it was noticed that the bullock, which had fed badly for some time previously, was slavering profusely. He would eagerly champ and chew his hay and seeds, and then throw them out of his mouth again. When he had been ailing for about three weeks I was called in. The tongue was at the time so bad that the animal could eat no solid food. At the same time there was a heifer in a similar condition, and two other bullocks were also slightly affected. All had general indurated yellow nodules embedded in their tongues. In the animal to which I was called, the tongue was much enlarged, and was very tender to the touch; the sides and the dorsum were studded over with nodules, varying in size from a marble to a pigeon's egg; one at the back of the mouth, in particular, was very large, with a large superficial erosion. The animal subsisted solely on mashes and linseed gruel, and at this time

weighed about forty stones or under, according to the owner, who was a cattle-dealer of some experience. The heifer was killed, but it was decided to treat the bullock. I ought to mention that the breath was foetid in all these cases, especially in that of the bullock, as it very commonly is in severe cases of Actinomycosis.

The treatment ordered at first consisted of painting over the affected part with tincture of iodine, and the internal administration of tonic medicine. Under this treatment the animal made no progress towards recovery, and on March 12th he had shrunk so much that it was deemed advisable to have him killed. It was, however, eventually decided to continue treatment; and accordingly I had the animal cast and the tongue carefully examined. It was almost completely infiltrated with nodulated masses. Into each nodule I made an incision, and painted the incised part with a solution of carbolic acid and iodine (iodised phenol—formula at foot of page 8, in the “*Veterinary Pharmacology and Therapeutics*”).

The nodules at the tip of the tongue were treated likewise, as were all the indurations. Some of the masses were of a light yellow colour, others were of a deeper orange. The operation was not unattended with difficulty, as some of the nodules were situated so far back that I could scarcely reach them. On the 16th of March I again saw the beast, and on examining the tongue, after casting him, I found that all the incisions were healed. In many places the nodules were smaller, and some had quite disappeared. On March 21st I saw the bullock for the last time; he was very much better, and could eat hay and straw. In April he was turned out to grass. On September 14th Mr. Mawer saw the animal, and he reported him as looking perfectly well, and calculated his weight at not less than seventy stones.

During the past twelve months I have seen a great number of cases of Actinomycosis, some of a mild description, others very severe; and, with the exception of two which I ordered to be killed, they have all recovered.

I am now treating one which has been affected for three months, and was stated by the farrier to be lung-grown. On

examination I found the tongue to be in a similar condition to that described in the case of Mr. Mawer's bullock. The animal was in a most emaciated state. This case it is my purpose shortly to treat in the way I have described.*

It has been stated that Actinomycosis is an incurable disease, but my experience leads me to affirm that when thoroughly taken in hand, the animals affected almost invariably recover.

If there be any doubts as to the diagnosis in cases of Actinomycosis, these can be at once set at rest by examining a portion of one of the nodules under the microscope, when, in this disease, the characteristic fungus will be found. Mr. D. Gresswell, many years ago, used to treat such indurates by painting the surfaces, or the incised parts, with very strong tincture of iodine, as he believed them to be due to a vegetable mould. If the tumour be incised, and the exposed part be painted with a very strong tincture (about three times as strong as the pharmacopœial tincture), the effect is decided, but probably not so marked as with iodised phenol.

OBSERVATIONS ON SHYING IN HORSES.

BY D. C. PALLIN, M.R.C.V.S., ARMY VETERINARY DEPARTMENT,
18TH HUSSARS, DUBLIN.

IN the September number of the VETERINARY JOURNAL, Mr. Dyer refers to shying, and he well describes ocular irregularities, but he makes no allusion to a condition of the eye which, in my opinion, is one of the most frequent causes of this dangerous habit.

During the year 1883, I contributed to the *Quarterly Journal of Veterinary Science in India* a few observations on shying in horses, and I therein stated that shying was frequently due to a condition of the eye characterised by an excess of pigment in those peculiar bodies known as the "corporæ nigra." I also illustrated my views by describing one of the many cases which

* During the interval of a month which has elapsed between the sending of the above MS. and the receipt of the proof, this case has been treated in the way detailed. It has already made very considerable improvement, and, in my opinion, will make a perfect recovery when some remaining nodules are likewise incised and treated.

had come under my observation, and I mentioned that my main object for writing the paper was to ascertain whether any others were prepared to confirm my opinion on the point. No one, however, did so; and I now wish to lay before the readers of the VETERINARY JOURNAL other cases which have come under my notice—*i.e.*, if the subject is considered of sufficient interest.

Case 1.—A valuable charger, the property of an officer in the corps with which I am at present doing duty. She had passed through the riding-school, being but a short time dismissed; and, owing to the dreadful habit she had of shying, her owner considered her perfectly dangerous, and useless for the work for which she was intended. I was requested to examine the animal, and, as expected, I found an abnormal condition of the *corpora nigra* of the right eye—the extent of the coalescence of the apparently superabundant amount of pigment no doubt giving rise to the very unpleasant defect. The left eye appeared perfectly normal; and I may here remark that it was principally from the right side the shying took place.

Case 2 was that of a six-year-old harness-horse, belonging to a most intimate friend, who had had several narrow escapes of being upset; so much so, that he decided to dispose of the “brute” (as he called it) at a sacrifice. Previous to disposal, I was afforded an opportunity of examining the eyes. In this case I found the irregularity in the left eye, while no defect could be discovered in the right one; and here the shying most frequently took place from the left side.

Case 3.—A four-year-old colt, which, a short time ago, was submitted to me for examination as to soundness. This horse, to all appearances, had most beautiful eyes; but on close examination, and the usual test (a black hat) being applied, a peculiar grape-like body was observed to hang over the right pupil, quite covering one-fourth of its circumference. It somewhat resembled that found in case 1, but extended farther down, and had a kind of pedicle. On being trotted up and down, he first shied at a small pool of water which happened to lie in the centre of the road; next at a piece of paper; and then came a child in a perambulator, driven by a nurse, objects which it took some

difficulty to get him to pass: I was obliged to reject this animal for an unsoundness unnecessary to mention here, and I have since heard nothing about him.

COMPOUND COMMINUTED FRACTURE OF THE
PHALANGEAL BONES IN A DOG, TREATED
SUCCESSFULLY BY AMPUTATION.

BY F. C. MAHON, M.R.C.V.S., SOUTHSEA.

I HOPE the accompanying history of a case of fracture implicating the digital bones, comprising a portion of the right phalanx of the dog, may be considered worthy of insertion in the VETERINARY JOURNAL. It was the first case of the kind I have actually had to personally treat, and it was very interesting to me.

The animal was a well-bred Manchester terrier, who, on the afternoon of the 8th August, received injuries from a bite by a mastiff, resulting in a compound comminuted fracture of the above-mentioned structures. The history of fractures implicating such bones as the radius and ulna of the fore limb, and femur of the posterior extremity, is well known, together with the causes so fertile in their production. This case is interesting from the successful results which followed amputation after all hope of saving the foot was gone, owing to the rapid necrotic changes which supervened. Primarily, the treatment adopted was in accordance with the recognised principles of "Modern Surgery," viz., (1) reduction of the part, or bringing the displaced portions into their normal position; (2) maintaining them in such position until repair had been effected; (3) prevent or combat the local and general accidents. Manipulation of the foot on the eve of the 8th of September, revealed a compound comminuted fracture of all the digits, except the first, of the right foot, as well as the inferior portions of the metacarpal bones. There was much laceration of muscular structure, with several deep wounds communicating with the fractured bones, which comprised a number of pieces. Temperature registered 102.5° F. as taken *per rectum*; respirations hurried; rigors; pro-

fuse sweating, notably at the neck and flanks, with groaning—all indications of severe pain. The diet of the patient was attended to some hours following the preceding treatment, and was readily partaken of. Thirst considerable, and continued for several days, and was a notable feature of the case. As prostration was manifested on the 9th inst., stimulating tonics, as, Spts. ammon. co., Tinct. gent. co., *āā* parts, morning and evening, were administered, the general comfort of the creature being likewise attended to. On the morning of the 11th of September, notwithstanding the precaution adopted by disinfecting the parts, a discharge of a sero-sanguineous nature continued, with much foetor, and, as was to be expected, œdema of the foot, which was now cold and denuded of hair. Examination revealed structural alterations of a necrotic nature, which had rapidly seized upon the digits particularly, and would shortly have affected the metacarpals. The terminal portions of the following structures more particularly were easily distinguishable, viz., ext. oblique of metacarpus, long abductor and short extensor of the thumb, and the common extensor of the digits, with the sheaths of the various and numerous distributed nerves of the digits. The ordinary measures for amputation were resorted to, and as but slight connection now existed, removal was accomplished with but little pain to the patient. Slight hæmorrhage, arterial, followed for a short while—presumably from the palmar, or collateral artery of the digits—which was soon arrested by pledgets of cotton-wool disinfected with Liq. acid. carb., and the exposed ends of the bones scraped and covered with bandages. Temperature up to 16th inst. has ranged from 103.5° to 102° , at which it now stands. No very perceptible constitutional symptoms have developed since the operation; appetite continues good, and the *sequelæ* of surgical interference to be dreaded, such as surgical fever and septic infection, etc., appear to be in abeyance, the case bidding fair to have a very successful issue. As we are not so solicitous for the canine host in such cases as in pedigree, shorthorn, and other valuable breeds of cows, where the carpus and metacarpus are fractured, and it is necessary to affix a wooden leg to the remaining portion of the limb—as witness the case reported by a

Driffield correspondent concerning the feat of Mr. Snarry, a veterinary surgeon, on the Westow Grange Farm, near York, where a valuable cow sustained damage to her leg, resulting in fracture—I am not aware that similar measures have been resorted to in the case of our canine patients, and would wish to be informed as to whether, in their treatment, means have been adopted of a like nature to the above.

THE MECHANICAL TREATMENT OF CONTRACTED FEET.

BY FRED. SMITH, M.R.C.V.S., A.V.D.

I HAVE the honour to place before the profession what I believe to be a new treatment, amongst English veterinary surgeons, of foot contraction. The idea is not original; I have borrowed it from a French work on surgery. This is not the place to discuss the causes of hoof contraction, but I feel it necessary to make a few remarks, in order to explain the style of case best adapted to this treatment, and to show that I have not been treating effect for cause.

Feet become contracted from other causes than navicular disease, the chief of which is bad shoeing. For a long time I doubted whether contraction pure and simple could cause lameness, but I feel satisfied that a horse may be lame from a contracted foot without any organic disease being present. I think this is feasible when we consider the compression which the posterior and internal parts of the foot are subjected to when the heels are contracted, and also what a reduction in bearing surface is brought about by this condition.

A case in point will illustrate my views. G 60, 12th Royal Lancers, had contracted feet from the day he joined the service. These were aggravated by various shoes which were tried, and for five years he wore tips. These had not the slightest effect in opening the heels and producing a firm and full frog. The condition had now existed for more than six years. The horse was lame if worked, and he had to go to the band to save him as much as possible.

Both feet were a terrible shape: the heels curled in, the outside one of the near fore foot was turned completely into the cleft of the frog; the inside one was much higher and overlapped it; the frog was just seen and nothing more; it was shrivelled and ragged. The off foot was in a similar state, but the frog was a little larger. The horse hobbled in his gait, and the case appeared most unpromising.

The shoe used to remedy contraction is made with a hinge opposite the quarters; the nail-holes may be placed completely around the toe if considered necessary, but not behind the hinges; the hinge portion is "seated out" and then serrated, the cuts being filed out, and looking forward; there may be as many as eight or ten, depending upon the size of the foot; the heels of the shoe are turned in, *so as to catch on the inside of both bars*. The shoe having been fitted carefully and nailed on, the heel still being fixed against the bars, a bar is introduced sideways, and then brought across the foot until it is nearly straight. It is then drawn forward with the hammer to the required degree, the serrated edge preventing it coming back. The fact of driving it forward expands the foot on account of the heels of the shoe catching in the bars. The bar is made of a light piece of iron, with a thin edge left to work upon the seated part of the shoe, and a point to catch on the serrated margin; its length depends upon the width of the foot, $2\frac{1}{2}$ to 3 inches is long enough to start with, and if made a little wide in its centre, it leaves some "stuff" for the smith to make it longer when required.

Having measured the feet of my patient, the following were the results. The near fore foot, before the shoe was placed on, measured at the heels, opposite to the bars, 2 inches, and at the quarters, $3\frac{9}{16}$ inches; this was on the 26th May. I put in the bar, and drove it forward one or two places, and had the foot kept in a warm poultice to soften the horn. The following day the heels *were the $\frac{1}{16}$ inch wider*. I drove the bar up further, and the next morning the heels were $\frac{1}{4}$ inch wider than on the 26th; on the 30th the horse was going sound. I append a table showing the amount of expansion of the foot. In ten days the foot *had widened half-an-inch at the heels*, and $\frac{9}{16}$ at the

quarters ; on the forty-sixth day the foot had expanded *no less than one inch at the heel.*

MEASUREMENTS OF NEAR FORE FOOT.

		Heels. Inches.		Quarters. Inches.			Heels. Inches.		Quarters. Inches.
May	26	...	2	...	$3\frac{9}{16}$	June	4	...	$2\frac{1}{2}$
	27	...	$2\frac{1}{16}$	...	$3\frac{9}{16}$		8	...	$2\frac{1}{16}$
	28	...	$2\frac{1}{4}$	...	$3\frac{5}{8}$		16	...	$2\frac{1}{8}$
June	1	...	$2\frac{5}{16}$	...	$3\frac{1}{8}$		22	...	$2\frac{7}{8}$
	2	...	$2\frac{3}{8}$	...	$3\frac{1}{8}$	July	10	...	3
	3	...	$2\frac{7}{16}$	...	$3\frac{1}{8}$				—

The off foot was not treated until 16th June. On that day it measured 2 inches at the heels ; twenty-five days afterwards it had enlarged $\frac{5}{8}$ inch, and the foot had developed a firm and full frog. Here are the measurements :—

MEASUREMENTS OF OFF FORE FOOT.

				Heels. Inches.					Heels. Inches.
June	16	...	...	...	2	July	4	...	$2\frac{1}{2}$
	18	...	...	...	$2\frac{3}{16}$		10	...	$2\frac{5}{8}$
	25	...	...	...	$2\frac{1}{4}$				

I know of nothing more surprising than the effect these shoes had in expanding the heels ; the manner in which the frogs appeared, after having been out of sight for years, was truly wonderful. The feet became quite healthy, the frogs full and well developed, and it was impossible to believe that the wretchedly deformed feet of May were the feet of July. I have little further to say in this communication ; time will reveal whether my case remains sound. I have at least the satisfaction of knowing that I have been the means of producing him frogs to both his fore feet, which could never have been accomplished by any other means.

An animal can be worked in this shoe—in fact, I think exercise a decided advantage. The bar cannot fall out, it certainly becomes loose as the foot expands ; all that is required is to examine it each day before the animal goes to work, and tighten it if necessary.

I think it sufficient to draw the bar up every three days or so ; but all depends on the case. Too much compression must be avoided ; the increase in pressure should be gradual, and if, as happened to me on one occasion, the animal went worse, I should

know the bar was driven too far forward, and I should either remove it for the day, or place it further back.

I shall be glad to give any further information with regard to this shoe.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(Continued from page 250.)

AQUO-CAPSULITIS is a disease which we, as veterinarians, are but little acquainted with, although I have no doubt, if more attention were paid to affections of the eye, we should occasionally diagnose it. The characteristic symptom of this affection is an exceedingly dull and turbid appearance of the aqueous humour. The beautifully clear, pellucid fluid, which is generally perceptible in the anterior chamber in a healthy state, is visibly occupied by something resembling muddy water, so that it in some cases prevents the animal from seeing any object. These symptoms remain a few days only, when the fluid becomes clear again, as a general rule. There are, however, instances when the case is protracted, and is tedious to the practitioner; there are also cases met with where the aqueous humour is so changed that it partakes of a green tint. In this latter case the experience of the examiner will be required to be brought to bear. Not many days ago, I was summoned to a distant county to examine a horse as to soundness. When the animal was being walked from the box-stall in which he was, to a three-horse stable where I was anxious to pursue the examination of the eyes, I observed a peculiar movement of the head and feet, which led me to look particularly to the eyes. My attention having been thus suddenly attracted to the visual organs, I inquired how long the horse had been in the possession of the present owner—he was standing by at the time—he replied, “About a month.” The aqueous humour had that peculiar tint, and the conjunctiva, when examined from behind, was of a *leaden* hue. This colour can be more readily seen when from before or behind than when the examiner stands laterally. I said, “His eyes are diseased.” He remarked he was not aware of it; that he had two opinions

prior to the purchase, and he held a certificate of soundness from one practitioner, and the other person was also of opinion the horse was sound. What amount of credit can be placed upon these statements I am at a loss to know; these kinds of cases are not unfrequent, as many persons may imagine. The horse was not purchased. There were two gentlemen concerned in the purchase, one of whom rode him over some fences whilst the other looked on; in a subsequent conversation on our way to the railway station, I was explaining the manner horses with impaired vision, as in this particular instance, take their leaps, when he exclaimed, "I remarked that he never jumped short, but always jumped *over the mark*, that is to say, jumped *too big*." These animals are safe jumpers if all goes well, but they are not those I should like to get into a difficulty with. I need not, I am sure, remark that such eyes are unsound. It appears to me that such cases as these are the most important as well as the most difficult we can be called upon to examine. A short time after this visit had been paid, a gentleman horse-dealer called upon me and related a case which had fallen under his notice. He said he had purchased a hunter of a certain farmer, mentioning his name and residence, and that he had named me as the examiner, when the owner declared it would be wasting time to have me. The purchaser asked no questions, but merely remarked that if he had not me he should telegraph to Dublin for a veterinary surgeon to come and examine the horse, and that the fee would be much higher in consequence. He sent the message and the veterinary surgeon attended, and examined the horse, and to the surprise of both purchaser and seller, pronounced the horse "blind." The gentleman was anxious to learn something more relative to this matter, as he believed I could afford information. He asked me if the man had fallen out with me, when I related what had occurred, with which he was satisfied, save and except that he had lost a considerable sum of money in payment of a high fee to the Dublin veterinary surgeon, which might probably have been saved had the seller been another kind of man. I am aware that many mistakes are made by examiners, and by those whom it might be supposed were better acquainted with the pathological condition of the eye; there are so many circumstances

connected with eye examinations which tend to perplex the examiner. In one case we meet with animals having a decided objection to prying, if the head is to be handled ; secondly, the peculiarly obscure daylight often interferes with our researches. The day these observations were noted was one ill calculated for such examinations. I was that morning engaged in the examination of a young animal, and found great difficulty in looking into the eyes. It behoves us to make ourselves acquainted with all these things, so as to be the better able to guard against them. I remember a practitioner bringing a mare to me, to give an opinion upon the near eye. His words were, "Sometimes I fancy I see something wrong in the eye, and at others I can see nothing : will you be good enough to examine it, and say if the eye be sound ?" I took this case into a darkened stable and by the aid of a lighted candle pursued the inquiry. I found at the *posterior* part of the lens an opacity, at which part cataract had commenced. The difficulty in this instance was the want of proper light. I find the ophthalmoscope not always practicable. I believe, in many cases of what are termed Amaurosis, we are at a loss to know the structure diseased. I am almost inclined to the idea that the membrane which secretes the aqueous humour is often as faulty, and it is that which gives to the eye the particular colour we so often witness ; but of this I would not like to speak in positive terms, not having directed my attention sufficiently to it. Lenticular Cataract is sometimes overlooked, from its extreme thinness. I have more than once or twice found horses passed as sound when opacity of the capsule has been present. It amounts to unsoundness, of course ; but it seldom interferes with the usefulness of the animal. Opacity of the lens assumes such a variety of forms, that it will be necessary to merely state that cataract in any stage is an unsoundness.

The vitreous humour is that part of the structure of the eye but little understood by us generally. That it is liable to disease there is sufficient evidence, from the fact of its becoming at one time liquefied and at another solidified ; in either case loss of vision is the result. It only remains that I should speak of the retina, to complete the hastily-thrown-together remarks I have made upon the visual organ. This membrane, it will be remem-

bered, consists of three layers ; the external or Jacob's membrane, the middle or nervous, and the external or vascular membrane. The first is said by its discoverer to be a serous one ; the nervous is the expansion of the optic nerve ; and the vascular, the ramification of the arterici centralis retina. When we take into consideration the three different structures, we need not feel much surprised at the complications of its diseases, and the want of success in their treatment. In the first place, should we meet with inflammation of the serous membrane, we can readily understand the effects and results of such a structure being inflamed ; secondly, when nerve-matter partakes of inflammatory action, we must all be aware of the pain the patient has to endure ; and lastly, if the vascular membrane is affected, we can imagine what devastating influences may be expected ; and to sum up the whole, let us imagine all these different structures to be suffering at the same time, to say nothing of other parts of the organ ; we should not wonder at our efforts being without fruit, when, as surgeons, we are called upon to treat them. I need not, I am sure, state that any impairment of function of the retina will materially interfere with vision, and should be pronounced unsoundness. A question often arises as to the soundness of an eye whose lid has been partially excised. These cases are always produced by injury, either from the bite of another horse or from being torn by a nail or some awkward instrument. I have had occasion to examine a good many of such cases as I have alluded to, and have observed in many that the eye is *lachrymose*. This it is which causes the purchaser to push his interrogations very close. I have never in any instance heard of any serious inconvenience ; it is an *eyesore*, certainly, and must be considered *in the eye of the law* as an unsoundness ; and it might afford a purchaser (sorry for his bargain) a loophole out of which he can creep, should he desire it. At the same time it will, as far as my experience has gone, not in any way impair vision. In these latter cases are often found a considerable quantity of mucus upon the lower lid, showing that the conjunctiva is not in health, and we frequently find also the eyes watery in horses which have recently been taken into the stable and fed upon dry food. A question is invariably asked as to the probability of such eyes

remaining sound ; if the derangement is merely functional, produced by a too sudden change of diet and stable management, by a little care and attention a healthy state of the eye will soon be established.

(To be continued.)

CASE OF VOMITION IN THE HORSE.

NOTES TAKEN FROM A CASE THAT CAME UNDER THE NOTICE OF THOMAS BONHILL, WHILST ACTING AS ASSISTANT TO THOMAS CAMPBELL, F.R.C.V.S., KIRKCUDBRIGHT.

History.—The subject of this case was castrated about two months before I saw him, by an empiric or district castrator. He seemed to recover from the operation, and was apparently doing well ; but, about three weeks before I saw him, the owner had noticed him going very stiff and loosely with his hind limbs, seldom seen lying down, and beginning to lose condition, although feeding well.

Symptoms.—Temperature, 101.5° F. ; pulse accelerated, and anæmic ; respirations were almost normal, but during expiration I noticed a slight second effort ; the nostrils were covered with a greenish discharge, and, while endeavouring to find out the cause of this, the animal suddenly gave a cough, at the same time vomiting a very large quantity of the fluid contents of the stomach. This took me by surprise, and I watched the patient closely for over half an hour, during which time I saw him vomit three times. Before emitting the fluid he seemed distressed, and stretched out his fore-legs, arched his neck and back, and opened his mouth, the semi-fluid material escaping by both mouth and nostrils. On inquiring of the foreman, I found the animal had been vomiting for three or four days previous to this occasion.

I visited him several times, and found on each occasion emesis could be produced by simply compressing the larynx. He fed perfectly well till within two days of his death, when he became very weak and emaciated. He walked with his back very much arched, and with a peculiar gait, using his hind extremities very imperfectly, and on trying to back him I found he could not do

so, from inability to lift his hind-legs. I also noticed he made no attempt to elevate his tail, and during excretion it was moved slightly to one side.

Prognosis.—From the first, death.

I gave orders that after death an opportunity was to be afforded me of making a *post-mortem*. The owner neglected to give this order to the foreman, and I found, on going to the farm two days after, that the horse was dead and buried. Mr. Douglass (the other assistant) and I proceeded to make a *post-mortem* under most unfavourable circumstances, both as regards the weather and the position in which the animal lay in the trench. I was very anxious to examine the spinal column, more especially in the lumbar region; but, owing to the position of the animal, I found it impossible, as he was lying on his back, and with little help and a trench partly full of water, combined with a downpour of rain, I had reluctantly to abandon that part of the examination. I made sure to examine the condition of the diaphragm and stomach. The latter I removed and brought away, with about fifteen inches of the œsophagus attached, and also the duodenum, which I forwarded to Principal Williams for further examination. The diaphragm was intact, and apparently healthy, as were also the liver and lungs. I could not get at the rest of the œsophagus and larynx, owing to the animal's head being doubled to one side and under water. On reaching home, Mr. Campbell carefully examined the stomach. The external aspect presented no abnormal condition, being about the ordinary size and shape. As we did not wish to injure it in any way, we inverted it, and examined the mucous membrane carefully, and found a desquamation of the epithelium in the cardiac portion, and a slight discoloration round the pyloric orifice, no doubt due to chronic inflammatory changes. Considering this to be a unique case, and on the advice of Principal Williams, I have endeavoured to record the facts, though perhaps in a hurried and imperfect manner, not wishing to occupy too much space in this valuable Journal. Being a student, and in search of information, I will be glad to hear, through the Journal, the opinion of any professional gentleman on the cause of the emesis.

RUPTURE OF THE DIAPHRAGM.

BY G. HOWE, PUPIL OF MR. POYSER, F.R.C.V.S., ASHBOURNE.

ON Thursday, October 1st, we were requested to attend a bay cart-horse, ten years old, the property of a baronet in this neighbourhood. The animal, whilst standing in the farm-yard preparatory to the day's work, had been perceived to be uneasy, was returned to his stable, and his movements watched. Thinking it only an attack of Colic, antispasmodic remedies at hand were administered, and the animal walked about; these failing to give relief, our attendance was desired.

On our arrival at one p.m. (four hours after the first symptoms of uneasiness had been perceived), we found the animal in a profuse perspiration, even the extremities were literally quite wet. Pulse eighty, full and strong; respiration varied by paroxysms of pain; extremities alternately hot and cold. On inquiry, we found pultaceous fæces had been passed, but the animal had discharged no urine since being unwell.

Examination *per rectum* revealed nothing abnormal, the bladder containing but little urine.

Always declining on the same side, he would utter a most piteous groan on reaching the floor, from which he would immediately spring on to his fore-legs, reminding one of the position which a cat or dog assumes when sitting upon their haunches.

This peculiar position seemed to afford the animal perceptible temporary relief, and he would turn his head towards his left side; when standing he would look to his right or off side. Our prognosis was unfavourable, as a rupture of some of the internal viscera was diagnosed.

From the symptoms, it was evident that our patient must eventually succumb; but in order to satisfy our client (who believes that while there is life there is hope), we adopted such remedial measures and treatment as we thought advisable.

All, however, were as anticipated, of no avail, the animal dying at four a.m. on Friday morning.

To me this case, so far an instructive and interesting one, had as yet its particularities to reveal.

The result of a *post-mortem* examination next day was that the whole of the intestines were more or less in an inflamed condition, as was especially the peritoneal lining of the inferior abdominal parietes. The large intestine and more especially the stomach, were very much distended with green food. On removing these it was at once seen that a rupture of the diaphragm had taken place, and that such rupture was *ante-mortem* was evident by the greater intensity of diseased action around it. The lesion was in the tendinous structure of the diaphragm, about five inches from the sternal attachment of its more muscular surroundings, and was by measure in extent about six inches in an upward direction.

As to the cause of such a rupture, it was thought that the horse subsisting, as it did, mainly on green food, had eaten too freely, and in galloping down hill (the farm being a very hilly one) with its over-distended stomach, by a sudden check or plunge, had caused the rupture.

The peculiar position before referred to, assumed by the animal at frequent intervals, I believe, has been considered diagnosis of Ruptured Stomach; but I can understand its being far more symptomatic of lesions in the diaphragm, especially when we have an overcharged stomach or a hardened liver pressing upon this vitally important structure.

I believe that lesions of this important muscular septum are more frequent terminations of the lives of many horses than are supposed.

I hope my desire to trespass on the space of this valuable Journal will be pardoned, but as veterinary literature on this subject is somewhat vague, I thought the case might prove as interesting (if not instructive) to some readers as it has been to myself.

Editorial.

THE MANNER IN WHICH DISEASE GERMS PRODUCE THEIR EFFECTS.

SINCE the discovery of micro-organisms in the fluids of the animal body, and the recognition of some of these as active agents in the production of morbid processes therein, the "germ theory" of infectious diseases has obtained wide acceptance; as it offers a ready and, on the whole, a satisfactory, solution of the various problems in connection with the development and spread of these maladies, and also with regard to their limitation and probable ultimate extinction. But there are many points relating to these factors in disease production which have yet to be elucidated, notwithstanding what has been already accomplished in their investigation; and, until light has been thrown upon them, our knowledge of various important operations or changes occurring in the course of the diseases which they are supposed to originate, must be very limited and vague. One of these points is as to the manner in which disease germs produce their effects in or on the body to which they have obtained access, and as to which there are at least two theories, either or both of which may be accepted as explanatory of certain special or general phenomena and structural changes observed during the life, and after the death of the germ-invaded creature.

We know that the part minute organisms such as these play in the economy of nature, is on a scale of the greatest magnitude, and that without them the grand operations which maintain the balance of power between the animal and vegetable kingdoms could not exist. It is established that the chemical changes brought about by the agency of living organisms are of two kinds—(1) synthetical or constructive, (2) analytical or destructive; the former are chiefly effected by plants, the latter by animals. The synthetical operations of plants are well illustrated in the transformation of such comparatively simple compounds as carbonic acid, water, and ammonia into starch, cellulose, sugar, gum, and albumen. The analytical operations of animals are seen in the reduction of the complex albuminoids, carbo-hydrates, and fats of their food to the simpler compounds, such as urea, carbonic acid, water, and ammonia, which result from the work and waste of the animal body. It is worthy of note that all micro-organisms exhibit the animalian attribute, though it is not to be therefrom inferred that they are animals rather than plants. Micro-organisms are commonly termed ferments, and their analytical operations are called fermentation; but it is necessary to draw a sharp distinction between the organised ferments and certain other bodies which bring about analogous chemical changes, but which are not only unorganised or structureless, but invariably exist in solution. These latter, or "soluble ferments," as they are commonly termed, are said to act by contact; they produce certain chemical changes in organic compounds without themselves furnishing from their own substance any of the products of reaction; so that a comparatively minute quantity of the ferment can effect the transformation of a very large quantity of the fermentable

substance. These soluble ferments are essentially analytical, and their effects are closely similar to those of the organised ferments : differing only or chiefly from the latter in the absence of organised matter, and in the non-increase of the ferment during its action upon the fermentable substance.

The functions of microbes may be, in the production of disease, of a physical or chemical nature. By their numbers, they may obstruct circulation in the smallest capillaries—act as embolisms, in fact—producing blood stases, hæmorrhages, hæmorrhagic infarcts, etc., as is seen in Anthrax, and as has been so well depicted by Toussaint in the plates which accompany his work on that disease ; or they may, when they obtain access to tissues, cause irritation, induce cell proliferation around them, and the formation of nodules or tumours, as in Actinomycosis, Glanders, Tuberculosis, etc. But, apart from this, their action generally may be said to be either benignant or malignant ; their *rôle* in either case tending towards bringing back all the materials of organised and living nature to simpler compounds, or into the gaseous state, in order to fit them for the food of plants. Whenever and wherever there is decomposition of organic matter, this has been brought about by these infinitely small organisms, which are the most important, almost the only, agents of universal hygiene ; they are, in fact, universal scavengers, and are found everywhere—in the air, the earth, and the water. On the surface of the soil bacilli and micrococci abound, and owing to their lightness (a small moist bacterium has been estimated to weigh the ten-thousand millionth of a milligramme) they exist in myriads in the atmosphere, being carried, as it were, on the “motes of the sunbeam,” as Tyndall has shown. They swarm in all water, even in the purest distilled ; indeed, without moisture they cannot grow, for if it be extracted or driven off from organic matter in which they are present, their development ceases. They beset animal bodies, being found on the skin and mucous surfaces, especially those of the ear, mouth, intestines, etc., ready immediately on the disturbance in, or death of a tissue, to swarm inwards and produce putrefaction ; they are never found in healthy tissues or blood. The same remark applies to vegetable bodies.

Each has a preference for certain kinds of food, or flourish best in certain soils, and each one appears to produce a secretion peculiar to itself—a characteristic to be noted when studying their relations to disease production.

Pasteur has shown that some of these organisms, which he terms *aërobes*, can live only in presence of oxygen gas ; whilst others, *anaërobes*, continue their development only in the absence of this element, although their germs retain their vitality in aërated liquids, and develop into active life so soon as they come into an environment free from oxygen. Solutions of salicylic acid, strychnine, brucine, morphine, and narcotine, appear to exert no deleterious action upon bacteria. On the other hand, they are rapidly destroyed by carbolic acid, spongy iron, alcohol and permanganate of potash, the first and last of which are well-known disinfectants.

Most micro-organisms appear to retain their vitality under very wide

ranges of temperature ; though each microbe has what might be termed a favourite temperature at which it thrives best, this being generally that of blood-heat. The bacilli of Tubercle and Glanders will not flourish at a temperature much lower than that of the blood, though most forms grow well at about 24° C., or even as low as 17° ; but below this they do not flourish, and growth is generally suspended at zero, to revive again with increased warmth. At 50° to 60° C., they languish and ultimately die, this result being achieved rapidly if they have been previously softened by maceration in warm water. Fatal temperatures range from 50° to 60° C. for micrococci, 55° to 60° for yeasts, and 70° to 100° for bacilli. All die at the temperature of boiling water, but spores resist a temperature of 120° C., and even more.

Hence, many of these organisms possess great tenacity of life, and it is very difficult to destroy the vitality of their germs. The unexpected fatal effects of spongy iron suggest that there are substances destructive to bacterial life, but which have no poisonous effect upon highly-organised animals. The theory has been started, that aromatic substances of various kinds may possess these properties, and hence their reputation as prophylactics, and their use in embalming, and in the preservation of animal and vegetable substances. The discovery of substances virulent to micro-organisms, and harmless to man and live stock, would be of immense value.

It is also well known to pathological mycologists, that there is the greatest difference in microbes as to the pabulum upon which they will grow, some developing well upon one kind of material, some upon another. Not only this, but some will only thrive upon a soil or medium which is neither too rich nor too poor in nutritive matter. Some, again, also grow best in acid, others in neutral media ; some, also, flourish in or on solid or semi-solid substances, others in fluids ; while some will be stained by one colouring matter, others by another. In fact, each microbe may truly be said to possess a special and distinctive individuality, which it seems to retain under all conditions and circumstances, and its effects are characterised by this individuality. This specific influence of each microbe is well seen in those with which we are most familiar, and many examples might be adduced; but two or three will suffice to illustrate what we may surmise takes place in the fluids of the body when a special microbe is introduced into them.

First, as to what is called the "fermentation" of beer. The yeast fungus (*Saccharomyces cerevisiæ* or *Torula cerevisiæ*, consisting of slightly egg-shaped cells, which multiply by budding, and sometimes by fructification or spores produced inside a mother-cell) feeds on the wort of beer, converting the sugar into alcohol, carbonic acid, glycerine, succinic acid, etc., whilst various other compounds are formed from the breaking-up of the nitrogenous matter. Beer exposed to the air may be attacked by the *Mycoderma vini*—an organism resembling the yeast plant—which grows on the surface of beer and wine. This, with the assistance of oxygen from the atmosphere, not only oxidises or burns up any sugar there may be in the beer, but also the alcohol, dextrine, and even some of the nitrogenous compounds in it, and especially those to which it owes its flavour, making it insipid and flat.

The *Mycoderma aceti*—another micro-organism, which grows on the surface of beer—can convert the alcohol into acetic acid; and when this conversion is complete, it may next attack the vinegar it has itself produced, and change it into water and carbonic acid.

If the bacillus often found in milk—the lactic ferment, as it is termed—gains access to the wort, it will, living and growing at the bottom of the fluid, convert the sugar into lactic acid, while after, or even during, the lactic fermentation, if the butyric fungus—which is an actively-moving bacillus, that lives in the fluid—makes its appearance, the sugar or lactic acid will be changed into hydrogen and carbonic acid, and it also produces an acid identical with that of rancid butter—butyric acid. This acid may, in its turn, be destroyed by various *Mucediniæ*, such as *Penicillium* and *Aspergillus*, and the products of these be again altered by other microbes.

The hay bacillus, which converts grass into hay or “silage,” exists in enormous quantity in grass, and in the presence of free oxygen it absorbs that gas, evolving carbonic acid and nitrogen, which are the gaseous products in the conversion of grass into hay. Its action is sufficiently energetic to set fire to the hay if stacked too soon, but ordinary oxidation probably sets in before the point of ignition is reached. The fermentation goes on under water, but the gases are more abundant, and then consist of carbonic acid, hydrogen, nitrogen, and traces of other gas of a combustible nature—probably marsh-gas; while acetic and lactic acids, and probably butyric acid, are at the same time formed. This is probably the kind of process or fermentation by which grass is converted into sour silage.

Another micro-organism is that which transforms nitrogenous organic matter into nitrates. This is the real natural scavenger of both savage and civilised society, and its operations are all the more acceptable because it transforms foul and offensive animal matter into innocuous and inodorous mineral compounds. It completes the work commenced by *Bacillus ureæ*, and it is the great agent in the purification of sewage by irrigation and intermittent filtration. Unfortunately, it does not seem to prey upon morbid bacilli and their spores; otherwise, low as is its place in nature, it would, after man, be the most useful organism in existence.

It has thus been shown that microbes have a wide and far-reaching action in the production of normal and abnormal conditions of matter, and the knowledge we already possess with regard to this influence in the instances cited may be applied, to some extent, to the study of them in relation to pathology. They may induce changes in animal fluids and solids by their mere physical presence, but it is far more probably the case that they produce chemical alterations in these, in addition to or independently of this action, or even generating a new matter, which may have a toxic effect on a part or the whole of the body. Their power of rapid multiplication, too, under favouring circumstances is wonderful, and this constitutes one of their greatest and most formidable dangers. It has been noticed that the power of multiplication gradually increases as the animal or plant descends in the scale of organisation.

The sheep produces only one or two lambs annually. The herring in the same time multiplies itself many thousandfold, while the aphid produces young at such a rate that a single individual would, if all its progeny lived, produce in three months a weight of aphides greater than that of the whole contemporary human race. As to appetite, also, voracity is greatest in the lowest organisms. A sheep or a cow consumes about one-sixth of its own weight in twenty-four hours; an earthworm, a caterpillar, or a silkworm many times its own weight. The yeast organism must, therefore, taking into account its position in nature, be considered decidedly abstemious, as it only consumes two-fifths of its own weight of sugar in twenty-four hours; it eats sugar, as it excretes alcohol and carbonic acid. Those micro-organisms which have been chemically studied produce, like the higher animals, perfectly definite chemical changes, so that, in this respect, there is no essential difference between a mass of yeast, a populous town, a herd of cattle, and a colony of snakes; each produces its own peculiar chemical changes in the food it consumes.

It devolves upon science to discover much that is yet unknown with regard to disease germs; but it is, we are confident, on the right track, and there can be no halting or wavering until everything relating to them is known, and the way to destroy them or render their deleterious influence on the health of animals less powerful or altogether inert.

DISINFECTION OF CATTLE CARS.

DR. P. REDARD, Physician-in-Chief of the State Railroads of France, has recently published the results of some experiments made by him to determine the true value of certain means of disinfection which are used in Europe to purify cars which have been used for the transportation of cattle. In France and several other countries the car is roughly cleansed and then washed with solutions of carbolic acid or chloride of zinc. In Germany, Austria, and Russia, on some lines chemical disinfectants have been abandoned, and jets of steam used instead. The experiments of Dr. Redard show that solutions of carbolic acid or of chloride or sulphate of zinc must be much stronger, and remain a much longer time in contact with the substances to be disinfected than can be the case in using these fluids in cattle cars. In almost every experiment with these substances the contagious properties of the virus of Glanders, of Anthrax, and of Chicken Cholera were not destroyed, and in every experiment with sulphurous acid gas it was found to be useless. No trials seem to have been made of the powers of a solution of bichloride of mercury, and the conclusion of Dr. Redard, that "the method of disinfecting cars by chemical substances is absolutely useless," seems premature; but there is no doubt that, as heretofore practised, it is of very little use. His experiments with the steam-jet gave the same results. The temperature of the jet used was from 80° to 90°C., and this did not destroy the vitality of the virus of Chicken Cholera, Anthrax, Septicæmia, or Glanders. He then proceeded to try the effects of superheated steam at a temperature of 230°F., and found that, with one exception, this destroyed all the contagion referred to above. The superheating was effected in a small coil of iron pipe through which steam from the locomotive was passed, heat being applied externally. Dr. Redard concludes by recommending the use of this superheated steam.

process for disinfecting cattle cars, and the abandonment of the processes heretofore employed. It may be remembered that at the first meeting of the British Veterinary Association, Dr. Fleming spoke strongly in favour of superheated steam as a disinfectant for cattle trucks.

THE PREVENTION AND CURE OF SORE BACKS.

THE following communication on sore backs and their prevention has been received, in consequence of an article which appeared in the forty-third number of the *Militär Wochenblatt*.

It will interest your readers to hear of an invention, by Veterinary Surgeon Schmidt, 4th Chevauleger Regiment, which has for its object to lessen the frequency of sore backs, and when they do occur, to permit their being cured rapidly, without throwing the patient out of work.

It must be understood that no claim is made to abolish sore backs by means of this discovery ; but it is asserted that any horses, with a saddle gall, no matter where it occurs, may be ridden as before, without aggravating the injury. The main idea dates probably from the time when men first began to ride, and consists in the removal of that part which presses on the injury.

Notwithstanding that several plans have been tried for the prevention of sore backs, they are not rare, and where the Hungarian "Bock" saddle is used they are of comparatively frequent occurrence, which proves the faultiness and uselessness of that saddle.

The construction of Veterinary Surgeon Schmidt's patent is very simple. On each side bar there are four pads, fitting closely together and bound to the bar, by small straps and buckles. Besides the straps, there is on the foremost and hindmost pads a small cap, which goes on the points of the bar. The material used is soft English felt, from two and a half to three centimetres (1 to 1½ inch) in thickness.

The advantages of these divided panels are :

1st. They, or any part of them, can be removed at once on the appearance of a chafe or swelling, without altering the saddle, and by displacing the offending pad, the cause of the gall is removed. The horse can then be ridden as before, because there is no longer any pressure on the sore. If therefore on the appearance of the slightest chafe or swelling, the corresponding pad is removed, sore backs will cease to occur.

2nd. As felt is of equal density throughout, it fits equally closely to the bars and to the horse's back, and therefore the bars will pinch less.

3rd. A saddle with felt pads clings to the saddle cloth, on account of their rough hairy surface, and the possibility of chafes through creases in the cloth is diminished.

4th. The panels are no broader than the bars, and therefore do not obtrude into the air channel. This allows the saddle cloth or blanket to be brought well into the channel, whereby sore withers are prevented.

5th. When, through constant marching and manœuvring, the horse gets thin, and the saddle requires refitting, it is only necessary to restuff the two central pads, which is done by fixing extra material to the straps of each pad.

6th. A set of pads is more economical than panels. Pads are one mark cheaper.

7th. When used with Schmidt's patent, the saddle cloth or blanket must be folded in four, which besides being very quickly done, affords the greatest immunity from creases.

8th. Fresh felt is easily sewn on to the old straps.

In a trial extending over two years, no drawbacks were discovered against the saddle-pads.

During the late autumn manœuvres, Veterinary Surgeon Schmidt brought his invention triumphantly through a very severe test. Two badly-galled horses were constantly ridden on duty with his panels; they were not excused work for one hour, and arrived in cantonments cured.

It will be found advantageous to sew some linen on the saddle cloth, which may be dressed with borax ointment—(borax thirty grains, tallow 200 grains, yellow wax twenty grains)—to lessen the roughness of the cloth.

Felt is very cheap and very durable; at the manufactory at Gingenander, Brenz, in Wurtemberg, it is particularly cheap.

Schmidt has tried his invention on officers' saddles; it is much appreciated and is in great demand.—*Wochenschrift für Thierheilkunde und Viehzucht*. August, 1885.

ANNUAL STATISTICAL REPORT OF THE ARMY VETERINARY DEPARTMENT FOR 1884.

THE ANNUAL STATISTICAL REPORT OF THE VETERINARY DEPARTMENT OF THE BRITISH ARMY FOR THE YEAR 1884.

This shows remarkable healthiness of the horses, and especially their freedom from contagious diseases: only one case of Glanders occurred, the final one of the outbreak of the 3rd Hussars at Hounslow. The sanitary condition of the horses of the British Army will, the Principal Veterinary Surgeon to the Forces thinks, contrast very favourably with that of any other European Army, this result being largely, if not altogether, due to the greater attention paid to sanitation, and to the better knowledge we possess of the conditions necessary for maintaining health and preventing and suppressing disease.

A. *The amount of inefficiency from accidents and sickness during the year.* Inefficiency from accidents and sickness during the year has been unprecedentedly low, the admissions being 61·65% of the establishment, as against 81·78% in 1882, and 76·74% in 1883. The fatalities average 1·72% ('93% died and '79% destroyed). This contrasts favourably with 4·70% in 1882, and 2·47% in 1883. In the accident classes of cases there is also a marked decrease for the year. On the opposite page is an analysis of the Annual Return of Sick and Lamé Horses.

B. *The average age of all horses in Her Majesty's mounted service at home is eight years and three months.* The average age is highest in the Household Cavalry (nine years two months), and lowest in the heavy Cavalry (seven years three months). There are, in all, thirteen horses over twenty years of age, and 365 three years old. There are more six years old than at any other age. *Total strength*, 11,984 and 1,607 officers' chargers. 1,371 remounts were received, and 1,510 horses were taken off the strength during the year.

C. *An average of 9·86% (1,189) horses was cast and sold.* The average length of service was $9\frac{7}{12}$ years. The largest regimental casting percentages are 5th Dragoon Guards, 14·97; 1st Dragoons, 20·10; 2nd Dragoons, 17·75; 2nd Dragoon Guards, 15·41; 10th Hussars, 21·72; Cavalry Depot, 15·96; and Royal Engineers, 16·59. The percentages for 3rd Hussars (1·35), 7th Hussars (3·69), and 15th Hussars (2·69) are very low. The length of service of cast horses was much below the average in the Royal Engineers ($6\frac{3}{12}$ years), and, especially 10th Hussars ($4\frac{7}{12}$ years), and 4th Dragoon Guards ($4\frac{9}{12}$ years). It was much above the average in most of the heavy

Class.	Total Cases.	Died.	Destroyed.	Remarks, Prevalent Diseases, and Causes of Death.
1. General diseases	407	7	2	These include Rheumatism, 34; Asthenia, 162; Anthrax, 0; Simple Fever, 57; Catarrhal Fever, 89; Bilious Fever, 24.
2. Respiratory	1135	35	6	Catarrh, 841 cases; Laryngitis, 55; Congestion of Lungs, 35; Pneumonia, 34; Cough, 32; Polypus, 1; Rupture of Diaphragm, 1; Hæmoptysis, 4. Deaths mainly due to Pleurisy and Pneumonia. There were 18 cases of Roaring; 20 of Broken Wind, and 25 of Nasal Gleet.
3. Circulatory	109	7	5	95 cases of Lymphangitis (2 died and 2 destroyed). One case of Hydrops Pericardii.
4. Urinary	4	..	..	One case of Urethral Calculus; 2 of Hæmaturia.
5. Generative	16	..	1	14 cases of Parturition, of which one was destroyed.
6. Digestive	286	43	1	Colic Spasmodic, 101; Flatulency, 80; Enteritis, 20 (of which 19 died); Strangulation, 9 (8 died); Rupture of Stomach, 4 fatal cases; Volvulus, 5 fatal cases; Rupture of Bowel, 1 (fatal); Stricture of Bowel, 2 (1 fatal).
7. Liver and Spleen	3	..	..	Two, Hyperæmia of Liver; 1 case of Jaundice.
8. Nervous	49	10	5	Epilepsy, 8 cases (2 fatal); Paraplegia, 9 (1 died and 1 destroyed); General Paralysis, 8 cases; Tetanus, 5 cases (3 died); 1 case of "Cramp."
9. Skin	514	1	..	The fatality due to Traumatic Erysipelas. The diseases mainly parasitic:—Lice, 14 cases; Ringworm, 111 cases; Mange, 15 cases. Of non-parasitic disorders:—Anasarca, 31; Grease, 40; Prurigo, 11, etc.
10. Locomotary	2003	1	63	Splint, 87; Spavin, 66; Contusions, 370; Sprains, of Ligaments and Tendons, 497; Laminitis, 81; Bruised Foot, 120; Punctured Feet, 208; Navicular Disease, 98; Canker, 3; Fractures, 48 (13 of Tibia, 11 of Metatarsus, and 6 of Radius); of these 43 were destroyed. The one death was from Arthritis.
11. Zymotic	258	2	1	The two fatal were out of 28 Influenza cases. The one was destroyed for Glanders. There were 229 cases of Strangles.
12. Visual organs	97	..	..	Ophthalmic specific, 16 cases (exclusive of 3 Cataract). The others mainly Conjunctivitis and Ophthalmia Purulent (23 and 26).
13. Surgical diseases and Accidents	2911	6	11	Abcess, Serous, 73; Purulent, 94; Wounds, 1216 (one gunshot); Contusions, 912; Tumour, 16; Sore Back, 138; Girth Gall, 66; Collar Gall, 19; Heelrope Gall, 41; Collar Chain Gall, 253. Fractures—Cranium, 3 (2 fatal); Vertebrae, 3 (1 died, 2 destroyed); Maxilla, 2; Ribs, 1; Pelvis, 23 (5 destroyed). Dislocations of Vertebrae, 3 (2 died, 1 destroyed); Burns, 5 (1 died, 1 destroyed); Bridle and Bit Injuries, 30.
Total	7774	112	95	Average age—Died, 7 years 8½ months; Destroyed, 9 years; Admissions, 7 years 9 months.

and medium cavalry, also in 11th Hussars. The average price for cast horses was £11 5s. 2½d.

The *principal causes of casting* are:—Old age, 5·29% ; Roaring 763% ; physically unfit, 556% ; defective conformation, 315% ; Asthenia, 406% ; navicular disease, 39% ; vice, 365% .

D. Of 1,274 remounts (exclusive of 97 which joined Household Cavalry) purchased, 452 were three years old, 556 four years old, 187 five years old, 58 six years, 21 seven years. Their price averaged over £41 per horse, 724 were purchased for cavalry (of which only seven were bought in England), 550 for transport, Engineers, and Artillery (of which 114 from Ireland).

E. and F. Influenza was almost absent during the year, and the 28 cases which occurred were limited to two barracks, one of them notorious for the occurrence of this fever—Regent's Park Barracks (in 2nd Life Guards), and the other at Woolwich, in stables occupied by the R.H.A. and long known to be insalubrious. In 1883 there were 346 cases, and the previous year 370. The *percentage of zymotic disease on the total army strength is* 24.

G. The percentage of admissions was by far the largest among four years old (133·81) ; above the average in animals of five (73·53), fifteen (62·55), sixteen (86·78), seventeen (71·71), nineteen (84·48), and twenty years old (65·0)—and below in three (36·76), seven (49·85), eight (45·14), nine (49·71), eleven (45·81), and twelve years old (46·68) especially. The mortality percentage low in seven and ten-year olds (78 and 8) *nil* in the animals of twenty years and over, highest in nineteen-year olds (689), high in sixteen-year olds (402), seventeen-year olds (353), four-year olds (259), fifteen-year olds (231), five year olds (230), and ten-year olds (220) ; average 172% .

H. The highest *percentage of admissions* was in the Royal Engineers (evidently the result of conscientious case book-keeping, as none died in that corps, and the destructions and deaths give a total mortality decidedly below the average). The lowest percentage of admissions is among transport mules, military police horses, and Household Cavalry. The R.H.A. admissions are numerous (7554), as also are those of medium and light cavalry (6914 and 6873) ; average 6165. The *percentage of deaths* is *nil* in Royal Engineers, military police, and transport mules, low in transport horses (47) and R.H.A. (54) ; high in heavy and light cavalry (141 and 120). Average, 93.

The *percentage of destructions* was highest in the military police (285), high in Royal Engineers (138), and light cavalry (99), low in medium cavalry (34), transport mules (55), and Royal Artillery, field (59). Average 79. The military police, heavy and light cavalry have the highest *total mortality* percentage (285, 222, and 219 respectively). The lowest total mortality was in the transport corps, medium cavalry, and Royal Engineers. Average 172% .

I. Of the cast horses, those sold in London and the vicinity fetched the highest prices, and those in Ireland the lowest. The heavier horses of artillery and transport realised, on an average, three pounds more than those of cavalry.

THE ANNUAL STATISTICAL RETURN AND REPORT ON THE HORSES OF THE BOMBAY ARMY FOR THE YEAR 1883-84.

This shows that 146 (855%) have been *cast* (twenty-seven less than last year) ; of these thirty-two were suffering from lameness the ordinary result of work, twenty-five from accidental diseases, and eighty-nine from unfitness irrespective of disease (seventy-three of these for old age and sixteen " dangerous to ride ") ; the average age of cast horses was 13 years 5·42 months,

against 15 years 181 months last year, length of service 9 years 179 months: against 10 years 238 months last year; eighty-one horses died or were destroyed (4% of the average strength, 1742) which is a higher than the previous year; of the cases recorded twenty-seven are classified as preventible. Sixty-six horses were castrated without any fatality. In addition to these 886 cases were treated, a considerable increase on last year. The average age of horses cast compares unfavourably with last year, but is accounted for by the fact that fewer horses were cast for age this year than last. There were seven horses destroyed after being cast for lameness and injuries instead of being sold, which, to an extent, accounts for the high percentage of deaths, also Anthrax carried off four horses of 17th Lancers and three of E/1 R.A.; and Glanders, three of the 17th Lancers and five of F/2 R.A.; still the average percentage of deaths is high. The increase in number of cases admitted to treatment depends to an extent on fifty-nine cases of skin disease of a temporary nature being reported from D-B, R.H.A., and is further due to the cases of specific disorder above mentioned. Only sixteen cases of lameness have occurred in excess of last year; "considering several batteries have been on long marches, this is not greater than could be fairly expected." The I. V. S. represents that much difficulty has been experienced in obtaining accurate reports of casting committees and veterinary history sheets properly filled in. The following are the *principal diseases and lamenesses for which the horses were cast*:—Debility (twelve), Ringbone and sprain (seven each), obscure lameness (five), Sesamoiditis (four), Spavin, Exostosis, and Roaring (three each). The *main causes of death or destruction* are fracture (eleven), Glanders (eight), Anthrax (seven), ruptured stomach (six), Enteritis and Paralysis (of each five), Colic, contusion, and Laminitis (of each forty-three). The 7th Dragoon Guards lost twenty-six horses, E/1 and 1/1 R.A. each, F/2 R.A. twelve; a case of Rabies is reported from 1/1. Of *diseases treated* those of the skin head the list, 118 (but there are 519 in the class "various"). There were eighty-eight of the digestive organs, seventy-two of the constitution in general (including specific), thirty-three of the respiratory system, and thirty-four of the foot, eleven cases were returned as of the nervous system, three the circulatory, and eight the eye. "His Excellency the Governor in Council notices with satisfaction that no casualty occurred among the sixty-six horses castrated. The I. V. S. states that the enormous average of casualties stated by the Officer Commanding 17th Lancers last year as inevitable is thus proved to be a miscalculation. In connection with this subject, it may be observed that in June, 1883, the Adjutant-General brought to the notice of Government that thirteen cases of Tetanus had supervened on the operation of castration of horses belonging to the 1st Bombay Lancers, and that of these ten died, for which compensation was solicited, but negatived by the Government of India. On that occasion it was reported that from the time the regiment arrived at Neemuch in the beginning of 1879 up to March, 1883, 114 horses had been castrated with only one fatal result. Still it is worthy of consideration whether it would not be to the interests of the Service if the Silladar Cavalry Regiments were informed of the system observed in the European Cavalry and Artillery with the success recorded in the preceding paragraph."—*Quarterly Journal of Veterinary Science in India.*

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD OCTOBER 2ND, 1885.

J. ROALFE COX, Esq., President, in the chair.

Members present:—Professors Brown, McCall, Axe, Pritchard, Robertson, Walley, Williams, and Duguid; Messrs. Blakeway, Carter, Cartledge, Cartwright, Roalfe Cox, Dray, Greaves, Mulvey, Perrins, H. L. Simpson, J. F. Simpson, Taylor, Whittle, Woods, Wragg, and the Secretary.

The SECRETARY read the notice convening the meeting.

Letters were read from Messrs. Santy and Pallin regretting their inability to attend the meeting.

Presentations to the Library.

The SECRETARY announced the following presentations to the Library:—“A Manual of the Theory and Practice of Equine Medicine,” by James Brodie Gresswell, M.R.C.V.S., and his brother, Mr. Albert Gresswell, M.R.C.S.E.; “Veterinary Pharmacology and Therapeutics,” by James Brodie Gresswell; “The Calendar of the Durham College of Science”; “The Journal of Medicine,” edited by Dr. Phipson; and “The Indian Stock-owners’ Manual,” by James Mills, M.R.C.V.S., translated into Tamil by V. Subramania Moodliar, a Probationer in the Cattle Disease Inspection Department.

On the motion of Mr. DRAY, seconded by Mr. PETER TAYLOR, a vote of thanks was accorded to the donors.

Diplomas.

Letters were read from Messrs. D. Thompson, of Trinidad, and George Percival, of Warrington, applicants for the usual diploma, being holders of the Highland Society’s certificates.

Mr. WHITTLE moved, and Mr. DRAY seconded, that the diplomas be signed. Agreed to.

Correspondence.

A letter was read from Dr. Hugues, of Belgium, thanking the Council for his Honorary Associate diploma.

A letter was read from Mr. Slattery, stating that he had lost his diploma.

The Secretary was directed to inform Mr. Slattery that he must send the usual evidence of his loss.

On a letter being brought before the Council, written by a student at the College who had failed to pass his final examination,

The PRESIDENT stated that he had read this letter, which had evidently been written too impulsively, under the irritation of a fancied grievance, for which all allowance might be accorded; but certain expressions therein, and to the prejudice of one Examiner in particular, were much to be regretted, and could admit of no extenuation.

Mr. H. L. SIMPSON moved accordingly, “That the letter be laid on the table.”

Mr. WHITTLE seconded the motion, which was agreed to.

Letters were read from the Royal Counties and the Lincolnshire Societies, supporting the proposed alterations of Clause 9 of the Supplemental Charter.

A letter was read from Mr. Backhouse, solicitor, of Blackburn, on behalf

of Mr. James Neild, to know if he could take steps against a non-registered practitioner who had sent in a bill for treatment of a dog.

Professor WALLEY moved, "That the Secretary be instructed to reply that this was a matter in which the Council could not interfere, and that the person referred to, not being registered, consequently could not recover." Agreed to.

Letters of complaint were read from two members of the profession, Mr. Crowhurst, of Maidstone, and Mr. Martin, of Rochester, with reference to a man styling himself a veterinary surgeon in a court of law when he possessed no such qualification, and stating that Mr. Martin would willingly take action against the man if the Council would sanction his doing so.

Mr. H. L. SIMPSON said that he had seen Mr. Martin since the communication had been sent to the Council, and he felt very strongly on the matter. He was a very responsible man, and he (Mr. Simpson) thought if he asked for assistance the Council would be quite safe in giving it to him.

Mr. BLAKEWAY proposed, "That Mr. Martin receive permission from the Council to proceed against the individual in question, but, of course, at his own expense."

Mr. P. TAYLOR seconded the resolution, which was agreed to.

Honorary Associates.

A letter was read from Professor Walley, proposing Mr. Joseph Gamgee, of Edinburgh, Mr. J. H. Balfour, of Edinburgh, and Mr. Sampson Gamgee, of Birmingham, as Honorary Associates.

Professor WILLIAMS stated that Dr. Balfour especially desired that his name should never be mentioned in connection with the veterinary profession, and he thought, therefore, that without consulting him they would not be justified in making him an Honorary Associate.

Professor WALLEY said that in the face of that statement he certainly should withdraw the name of Dr. Balfour. With reference to Mr. Joseph Gamgee, of Edinburgh, and Mr. Joseph Sampson Gamgee, of Birmingham, he thought they were well worthy of being elected Honorary Associates of that College. While they had a number of foreign Associates, they had only five or six of their own home veterinary surgeons elected to that position.

Professor ROBERTSON seconded the resolution.

Professor PRITCHARD asked what grounds there were for proposing the name of Mr. Joseph Gamgee, of Edinburgh, as a recipient of that honour.

The PRESIDENT said he apprehended it was in recognition of his literary attainments.

Professor WALLEY said that Mr. Joseph Gamgee had been well known in connection with the profession for many years. He was a very old member, and had greatly enhanced its value in the eyes of the public.

Professor BROWN said he had no personal objection to Mr. Gamgee, but he thought there were at least one hundred members of the profession who were equally entitled.

Mr. GREAVES supported the resolution, which was agreed to.

A letter was read from Dr. Fleming, proposing Dr. Duncan, of the Ontario Veterinary College, as an Honorary Associate.

The matter was directed to stand over until the next meeting, for the attendance of Dr. Fleming.

Registration of Practitioners.

The SECRETARY stated that it had been found necessary to take the opinion of counsel—Mr. Moreton Smith—with reference to prosecutions under Section 17 of the Veterinary Surgeons Act.

Counsel's opinion having been read,

Professor AXE moved, "That the Secretary be instructed to write to the solicitor to take immediate steps for proceeding with the case under consideration."

Professor MCCALL seconded the resolution, which was agreed to.

The Court of Examiners.

The SECRETARY read the report from the Court of Examiners.

Professor ROBERTSON asked whether they were to understand that all the men mentioned in the report were to be sent back until next March. Some men had been unfortunate enough to miss their diploma by one mark only; others had totally failed. He wished to know if all the men were to be placed in the same category, and whether those who had failed on one point only were not to be allowed to come up at an earlier date than March next. If not, the result would be that the whole of the men would be sent back for nine months.

The PRESIDENT said that the only desire in the minds of the Examiners was that the men should pass, and they felt that seeing so many of them were a very long way from passing, a full additional session would be of great advantage to them. At the same time it had been arranged that there should be a Christmas examination for this year, and it was a matter for the Council to decide whether these candidates should be allowed to come up at that Christmas examination.

Professor WILLIAMS moved, "That there be a winter meeting of the Board of Examiners to examine students as usual."

Professor ROBERTSON asked if there were any means by which men could be relegated to their studies for a longer or shorter period, as should seem necessary to the Court of Examiners.

Mr. GREAVES said this question had been before the Council over and over again. A discretionary power was left in the hands of Examiners to recommend to the Council that students who passed with the exception of perhaps one mark might be examined at an earlier date, whilst students who were manifestly incapable should be sent back for a longer period. He was entirely in favour of making an exception in the case of those gentlemen who had failed very slightly.

Professor PRITCHARD said the Examiners exercised their judgment to the best of their ability in relegating these men to their studies, but if there were certain men whom the Principals of the Colleges thought might be taken into consideration, he would suggest that a recommendation should be received from the Principals to the effect that such men should be examined within a certain period—three months, or whatever time might be named by the Council. He hoped that the Council would not entertain the idea that the Examiners were harsh in dealing with the candidates in the manner in which they did. ("No, no.")

Professor WILLIAMS said he wished to place the responsibility upon the men themselves, and therefore he moved, "That the students should be allowed to come up for examination at Christmas as usual."

Professor AXE seconded the proposition, which was agreed to.

Professor AXE then moved, "That in future Examiners should make more specific reference to men who had signally failed in their examination."

Professor WILLIAMS seconded the resolution, which was agreed to.

Finance Committee

Mr. DRAY moved, and Mr. WHITTLE seconded, "That the report of the Finance Committee should be received." Agreed to.

The report from the

House and Building Committee

was read and received, and a question having arisen as to the party-walls, the Secretary was directed to request the architect to send in the certificate from the district surveyor, together with his report upon the party-walls of the old structure.

Mr. DRAY asked permission of the Council to draw cheques in payment of the liabilities. Agreed to.

Examination Committee.

The report of the Examination Committee appointed to consider the fixing of permanent dates for the several examinations of the Royal College of Veterinary Surgeons was read.

Professor WALLEY proposed, "That the report be received, and that the next examination be fixed for the 8th December."

Mr. DRAY seconded the resolution.

Professor ROBERTSON proposed as an amendment, "That students in London should be examined in the first week in January."

Professor AXE seconded the amendment.

Professor ROBERTSON said that if it were only for one year he would withdraw his amendment, but if it were to be a permanent date he should certainly oppose it.

The PRESIDENT stated that it only referred to the present year.

The amendment was then withdrawn, and the motion agreed to.

Clause IX. of the Supplemental Charter.

The report of the Committee appointed to inquire into the operation of Clause IX. of the Supplemental Charter (1876) was read, and instructions given to the Secretary to confer with the College solicitor, and obtain counsel's opinion on several important points, and report to the Council at the next quarterly meeting.

Mr. H. L. SIMPSON moved, "That the report be received."

Mr. BLAKEWAY seconded the motion, which was agreed to.

The report of the Law of Warranty Committee was read.

The SECRETARY read the obituary list.

SPECIAL MEETING.

Professor WALLEY, in bringing forward his first notice of motion—"That this Council take the necessary steps to obtain the power of fixing the day and date of the annual meeting as may be most convenient for country members"—said his object was simply this: that the excuse was very largely made throughout the country that the time of the annual meeting was extremely awkward for country members. There was a great deal of work going on in the spring, and consequently a large majority of the members of the profession wished the date to be altered. He apprehended, however, that no alteration of that kind could be brought about without another Charter; and as in all probability something was required to be done specifically in connection with the Fellowship Clause, he would allow the matter to stand over until they saw what was to be done, because it would be absurd to raise any question in connection with the annual meeting until they had something else to go to the Privy Council upon. With reference to the second notice of motion standing in his name—"That this Council instruct the College solicitor to make a careful examination of the provisions of its different Charters and Bye-laws, with the view of showing whether the same are in relative accord or otherwise, and to submit a report

on the subject to the Council at its next meeting"—he said that the action of the Committee in reference to Clause IX. of the Supplemental Charter to a very large extent strengthened the motion he was about to make. It was quite evident that the Committee felt that the College did not stand on very firm ground in connection with that particular clause, and he thought that if they came to look over their Charters, Bye-laws, and Regulations, they would find that that was not the only point on which they were not acting quite legally. In face of this and of the opposition that had arisen in reference to Clause IX. he thought they would have very little difficulty in persuading the Council as to the necessity of having the whole of their Bye-laws and Charters and Regulations submitted to their solicitor, with power to call in the assistance of counsel, in order to consider them.

Mr. H. L. SIMPSON seconded the resolution. He said it was certainly a very remarkable thing that the moment they came to the new Charter doubts were raised as to its legality ; and as they had submitted a portion of the Charters for counsel's opinion he thought it was very undesirable that they should go to work piecemeal, and by-and-by find out that there was some other portion that was not legal. He therefore thought it very desirable that this motion should be agreed to.

Mr. GREAVES said the Charter was drawn up under the advice of their solicitor, and all the other Charters were carefully examined by him. (Hear, hear.) He thought if they began to meddle with these things, and ask one solicitor and one barrister to try to improve upon the work of others, they might encourage a great deal of opposition. He for one did not see the absolute necessity of taking the step that had been proposed. (Hear, hear.)

Mr. DRAY said he could confirm what Mr. Greaves had said, that the Charter was drawn up under the advice of a solicitor very eminent in his profession.

Professor WALLEY said his motion was not with reference to that particular Charter, but to other Regulations and Bye-laws.

Professor BROWN said the revision of a whole set of Bye-laws, and the comparison of those Bye-laws with two or three Charters and Acts of Parliament, was no mean matter, and it would involve the Council in very serious expense. (Hear, hear.) He agreed that the Bye-laws ought to be revised, because some of them were undoubtedly quite inconsistent with their present position ; but surely that ought to be done, in the first place, by a committee.

Professor WALLEY said he merely asked that the College solicitor should be instructed to examine and report to the Council. He did not propose that any further action should be taken.

Mr. GREAVES moved, as an amendment, "That no steps be taken until after the result of the application was made known with reference to Clause IX."

Mr. DRAY seconded the amendment.

Professor WALLEY said, with the permission of the Council, he would withdraw his motion for the present.

The matter then dropped.

Professor AXE, with reference to a notice of motion as to the amendment of Bye-law 47, said it had been intimated to him by the Secretary, that for some special reason, if he brought forward his motion at that meeting, it would be necessary to call a special meeting, which might be avoided if he deferred the matter until the next quarterly meeting. It was not urgent, and he should be very willing to do so to suit the convenience of the Council.

On the motion of Mr. DRAY, seconded by Mr. J. F. SIMPSON, a vote of thanks was passed to the President, and the proceedings terminated.

NORTH OF ENGLAND VETERINARY MEDICAL
ASSOCIATION.

THE usual quarterly meeting of this Association was held at the County Hotel, Newcastle-on-Tyne, on August 28th, 1885 — the President, G. Elphick, Esq., in the chair.

The PRESIDENT said that, since our last quarterly meeting held in May, there had been a special meeting, the object of which was to reconsider the motion carried at the May meeting with respect to Clause 9 of the 1876 Charter. As the special meeting was only thinly attended, it was resolved to have the matter again brought forward and finally settled at this one. He therefore invited discussion on this important point, and as he had repeatedly put his views before them, he thought it unnecessary to do so again.

Professor WALLEY said there was a good discussion on this subject at the meeting of the National Association at Birmingham, Mr. Gamgee making a very able speech on it ; the outcome of the whole being that a motion was carried by a very large majority to the effect that the clause should be rescinded. The objectionable clause was not, as many asserted, passed in a quiet way, but was thoroughly gone into ; although, unfortunately, the importance of its after effects was overlooked by some of the Members of Council at the time. He was of opinion that the clause should be materially modified ; and he thought there should be no examinations for the Fellowship, but that candidates should write a thesis, and that the fees should be raised to ten guineas. In any case, the rights of members should be respected.

Mr. AWDE thought that the clause should be rescinded, the Fellowship examination to be left as it is ; but it should not interfere with the rights of members who were members when it was formed.

Mr. DUDGEON said that if the clause is rescinded some of the examination Fellows have threatened to take legal proceedings against the Council for damages. He thought their views should be put before the Council by their representative, Mr. Mulvey ; it was for the members of that body to make alterations, not them. He had much pleasure in again repeating the motion he made at the last quarterly meeting, viz. : "That the members of this Association respectfully request the R.C.V.S. to take the necessary steps to rescind Clause 9 of the Supplemental Charter of 1876."

Mr. H. HUNTER, in seconding Mr. Dudgeon's motion, thought that three-fourths of the profession would like the clause altered.

Mr. W. HUNTER thought the clause should stand as it is ; it makes members read up subjects they have entirely forgotten. The examinations, so far, have been a burlesque ; sixty-two candidates presented themselves, sixty passed ; such a thing had never been heard of in the annals of examinations. The examinations should be more searching and severe, so that there would be some chance of picking the best men out. He proposed the following amendment to Mr. Dudgeon's motion, viz. : "That Clause 9 be not rescinded, but that the examinations for the Fellowship degree be made more searching and severe."

Mr. C. STEPHENSON, in seconding Mr. Hunter's amendment, said he should like to know how the clause was to be rescinded ; were they going to have a new Charter ?

Professor WALLEY said the Council at present was in a peculiar position ; it was threatened with legal proceedings both by Fellows and members. The Charter of 1876 had, to a certain extent, over-ridden the original one. At a meeting of the Edinburgh Society, the Council was petitioned to modify the clause.

Mr. STEPHENSON asked Professor Walley what power the Council had to alter the clause.

Professor WALLEY said it was a knotty point that had not yet come before the Council ; but it would, he doubted not, be anxiously and fairly considered. Personally, he was of opinion that the best legal advice obtainable should be got on the question, and he intended to move in that direction.

The amendment and motion having been put to the meeting, the latter was carried by a majority of eleven, fifteen members voting.

Mr. AWDE then read the following paper on

VETERINARY SANITARY SCIENCE.

When I promised the Secretary to read a paper before the members of this Association, I had not the slightest idea as to the subject of it. However, after much consideration, I have selected Veterinary Sanitary Science as the subject for discussion; not that I consider myself capable of treating it as ably or so exhaustively as it deserves, but because I consider it a very appropriate one at the present time, owing to the prominence that is being given to sanitary measures generally in this country, with a view to prevent the introduction of that dreadful disease, Cholera, which is claiming its victims by hundreds every day in Europe. I have also introduced it because I consider that it is from this science that the veterinary profession will benefit in the future.

Previous to the introduction of this science, which has been much neglected in this country, it has been generally considered that the duty of a veterinary surgeon was only to cure the diseases to which animals are subject ; but latterly we have been asked to advise as to the prevention as well as the suppression of disease. There is an old adage which says that "prevention is better than cure" ; particularly is this the case with the contagious diseases that are continually invading and destroying the flocks and herds of our country.

It is essential in these days of foreign competition that the English farmer should not be hampered by unnecessary restrictions, but that he should be protected, to a certain extent, from the ravages of imported disease.

It is generally admitted that in order to preserve animals in a good state of health, they must be kept under good sanitary conditions. We all know that, in considering the causes of disease in general, neglect of these conditions is one of the most fertile ; and I will only quote Influenza as an example.

I think that all present will admit that there has not been sufficient attention bestowed upon sanitary measures by those who own stock. Of late years there has been manifest improvement in this direction, particularly in new buildings ; but in the older buildings about farm houses what do we find ? Almost an entire absence of light, or any system of ventilation or drainage. The sewage matter is allowed to run out of the buildings on to the soil, or into folds, where it not infrequently finds its way into the supply of water for drinking purposes. I have a decided objection to the present plan of arranging farm buildings, whereby they are built in a square, which is usually filled up with a monster manure heap, in a state of decomposition, and giving off anything but pleasant odours. I am also afraid that the covered folds now coming into use will not be any great improvement in that respect. I am bound to admit that they are beneficial in protecting the animals contained in them from the inclemency of the weather, but am afraid that in the act of closing them in, and allowing the manure, etc., to remain, that they will be breathing only a vitiated atmosphere, the consequences of which are more serious than if they were in an open fold. The

fluid matter from farm buildings should be properly drained away into a tank, well bricked and cemented out, and so arranged that its contents could be pumped out and used for irrigating the land. Manure heaps should, in my opinion, be at a reasonable distance from the buildings where animals are housed, and, if necessary, covered over, in order to protect the manure from rain, and also from the drying influences of sun and wind.

I now propose to consider this science from a legislative and administrative point of view. Veterinary sanitary science is almost a dead letter in England, owing to the Government not recognising the assistance that could be given to it by the members of our profession. It was not until 1865 that the Veterinary Department of the Privy Council was formed, since which time, I am glad to say, that members of our profession have been appointed as inspectors to the ports where foreign and other cattle are landed. There are also inspectors in connection with that department whose duty it is to visit and investigate outbreaks of contagious disease, and to give advice as to limiting and suppressing them.

Most counties have appointed County Veterinary Surgeons, whose duty it is to advise the County Authorities as to contagious disease, and to investigate the same if required. All Local Authorities have Veterinary Inspectors appointed for the purpose of confirming, or otherwise, the opinions of the police, who are the inspectors under the Act of 1878, except in the boroughs where the duties are generally performed by the Inspector of Nuisances, neither of which set of persons have had any special training for the duties of their office.

It is not my intention in the present paper to go fully into all the contagious diseases, or the legislation connected with each of them for their prevention and suppression. I consider that there are at least two diseases that should be included within its scope—one is Tuberculosis in cattle, and the other is Rabies in the dog.

The Contagious Diseases (Animals) Act is, in my opinion, too permissive in its character. It requires to be made a compulsory measure, and it would then do away with the anomalies that at present exist. Under the present system it is possible to find two sets of by-laws or regulations relating to a contagious disease, quite different from each other, in two districts of the same county; and not infrequently in the urban and rural districts of the same borough is this the case.

In order to carry out an Act of this kind in a proper manner, it would require the appointment of a Central Authority—whose duty it would be to inquire closely into the causes generally operating in producing these destructive diseases, and conduct experiments for the elucidation of any disputed points in connection therewith—composed of veterinary surgeons of great experience, under a Minister of Agriculture, who would issue orders uniformly throughout England, and collect statistics of animal disease throughout the country by means of the reports of the County Veterinary Inspectors, who should be appointed by the Central Authority at a fixed salary, their services to be entirely devoted to the duties of their office. District Veterinary Inspectors should be also appointed in the district of each Local Authority, and upon whom would devolve the duties at present carried out by the Inspector of Police or Inspector of Nuisances, as the case may be.

The District Veterinary Inspectors should be paid a fixed salary, to be paid by the Local Authorities, and should also inspect the markets and fairs in their district on every occasion that they are held. Power should be given them to order the slaughter of any animal suspected to be suffering from contagious disease, and compensation allowed the owner if such was proved not to be the case.

It is very necessary that these places should be periodically inspected, as there are persons so unscrupulous that they would expose any diseased animal for sale. Owing to no system of inspection being carried on, I have no doubt that disease is often spread from markets and fairs, and should recommend a thorough inspection of both markets and fairs. I shall now proceed to consider the inspection of meat with slaughter-houses, also that of milk and dairies, and likewise that of horse-slaughterers' or knackers' establishments.

Inspection of Meat and Slaughter-Houses.—There is no person so fitted to undertake these duties as the qualified veterinary surgeon, owing to the scientific training he has had, his knowledge of animal disease. The time has now arrived, in my opinion, when all private slaughter-houses in large towns should be abolished, and the establishment of abattoirs or public slaughter-houses instead. It would then be possible for a thorough system of inspection to take place, (1) of the animals previous to slaughter, (2) of the organs taken from them when killed, and (3) also of the carcase itself.

The Veterinary Inspector would then easily be able to say whether the meat was fit for human food. The flesh of animals suffering from Tuberculosis should be condemned as unfit for the food of man.

By this plan it would be possible to put a stop to the large amount of traffic that is carried on in diseased meat in many of our large towns.

In small towns and villages the private slaughter-house could still be inspected by the Veterinary Inspector.

Inspection of Milk and Dairies.—Milk is well known to be an absorbent and a carrier of disease and other germs, and owing to its large use as a food, particularly for infants, young children, and man generally, it is therefore of the utmost importance that it should be pure and free from disease or deleterious materials. In order to obtain good milk it is necessary that the animal that gives it should be in a healthy state, and should be placed under good sanitary conditions. It is therefore obvious that the buildings in which dairy cows are housed should have ample breathing space, and be well ventilated and drained, and they should be periodically inspected by properly qualified veterinary surgeons. Any cows found there suffering from Tuberculosis should be removed, and the use of the milk of such cows prohibited. I should also recommend compulsory slaughter in such cases.

Inspection of Knackers' or Horse-Slaughterers' Establishments.—These places should be periodically inspected by veterinary surgeons, and a record kept by the proprietor of all animals brought in, either alive or dead, where they were obtained, and reason for slaughter or death recorded, as the case may be. The sanitary arrangements of these places should be strictly attended to, particularly in towns, or they are apt to become a nuisance. It would be necessary during the outbreaks of contagious disease to have these establishments visited frequently, as animals are often sent off surreptitiously, without the disease being reported; particularly is this the case with Glanders.

Mr. STEPHENSON, in opening the discussion, said he did not agree with Mr. Awde about covered fold yards. He thought they are capital places for cattle, and, when properly ventilated, wonderfully comfortable and healthy; and he also did not like the idea of urine and fluids from manure being drained into tanks; they gave off most offensive smells, and were dangerous to health. With regard to veterinary sanitary science being a dead letter in England, he did not think it is so, but that it is fairly active, and is improving in that respect daily. Considering the disadvantages inspectors have to work under, the law is fairly carried out. He quite agreed in condemning permissive

law. The word *may* in our Contagious Diseases (Animals) Act has caused more injustice and trouble than is generally known. As veterinary surgeons they should unite, and try to get uniform and compulsory action. He was of opinion that sixty-five days' quarantine is of no use to arrest outbreaks of Pleuro-pneumonia; and knew of a case where the disease was dormant (in the cyst stage) fifteen months before breaking out. Knowing the uncertain length of the incubative and cyst stage, it is plain that inspection of markets and fairs can only be effective up to a certain point. Most of our Pleuro-pneumonia outbreaks in Northumberland have been sent from Ireland.

Professor WALLEY said, with reference to covered folds, he agreed with Mr. Stephenson that they are very useful buildings (if properly ventilated and managed) for the housing of cattle. With regard to the manure often seen in a decomposing state, he did not agree with Mr. Awde that the fluid portion should be drained off into tanks and used for irrigating land. He abominated tanks, and thought they are a source of much evil and mischief. Instead of running off the fluid parts of the manure, he preferred their being kept in contact with the solid matter, and the latter not be allowed to remain so long in the heap, but put on the land in a fresher condition—*i.e.*, before actual decomposition was completed, and, as a result, the volatile gases and ammonia lost. He would also advise that the manure, when in the fold, should be daily sprinkled with sulphate of lime; thereby fixing the gases and enhancing the value of the manure at the same time. He agreed with Mr. Awde that Tuberculosis and Rabies should be included in the Contagious Diseases (Animals) Act, and would go still farther and include Anthrax. He was also of the same opinion as Mr. Stephenson, that Ireland is the country whence most of our outbreaks of Pleuro-pneumonia come from. He should very much like to see the present laws with respect to contagious diseases made more stringent; power should be given to inspectors to at once seize and slaughter all animals exposed in open markets or found in dairies or pig-styes while suffering from contagious diseases, or, in fact, if suffering from pronounced organic disease. Inspectors should all be veterinary surgeons, and *all veterinary surgeons* should do their utmost to get the municipalities where they reside to do away with all private slaughter-houses, and provide public abattoirs, where inspectors would get a fair chance of seeing all carcasses that were intended for human consumption.

Mr. DUDGEON said the subject was a very important one. He did not think Tuberculosis could be brought under the Contagious Diseases (Animals) Act, but was strongly of opinion that all large towns should have public abattoirs and properly qualified inspectors.

Mr. W. HUNTER said he believed in covered sheds, and did not see any objections to them, if properly managed. With regard to Tubercle being included in the Contagious Diseases (Animals) Act, he did not quite agree with some of those who had spoken. If all tuberculous animals were condemned, we should very soon have no cattle left; besides this, owners would want compensation, which would be a very serious item.

Mr. MOORE said he would be glad to see Tuberculosis put under the Act. The difficulty, however, would be compensation. It was well known that our great shorthorn herds were badly affected, and if compensation had to be given at their fancy prices, the cost would be enormous. Would it pay the country to stamp the disease out? He thought it would in the long run. With regard to the flesh, he had repeatedly been shocked at the condition of animals passed as fit for food. Inspectors would pass a carcass if in fair condition, no matter how extensively diseased. He held somewhat strong views on the subject. Several years ago he expressed an opinion that, no matter how slightly affected, every particle of the carcass should be destroyed,

and he still maintained that opinion. With regard to Swine Fever, he advocated the slaughtering at once of every pig that had been in contact with a diseased one; that, if possible, the slaughtering should be obligatory, and not permissive; and that, where deemed necessary, the styes should be destroyed.

Mr. GOFTON said he would like to ask if they had any power to prevent the milk from tuberculous animals being sold.

Professor WALLEY said they had no power unless the animal was suffering from a contagious disease recognised by the Privy Council, *e.g.*, Pleuropneumonia, Foot-and-Mouth, or Rinderpest. Tuberculous cows should be removed and slaughtered, and the flesh excluded from use.

Mr. H. HUNTER said he did not think we should go so far as to stop carcasses with only a slight trace of Tubercle; he did not think it was such a serious disease as it was considered.

Mr. MOORE said no line could be drawn from carcasses alone.

Mr. AWDE, after a lengthy reply to the remarks of the different members, said he wished to put forward several resolutions; but, owing to the want of time, he would have to postpone them until a future meeting.

By permission of the Chairman, Professor WALLEY introduced the matter of the meeting at Edinburgh next year of the National Veterinary Association, and, after some discussion, it was unanimously promised to accord the Scottish Association their hearty support on the occasion.

The meeting then terminated with the usual votes of thanks to the Chairman and essayist.

COLIN GREASY, *Hon. Sec.*

PROCEEDINGS OF THE THIRD GENERAL MEETING OF THE NATIONAL VETERINARY ASSOCIATION.

(Continued from page 304.)

NUMBER OF MEMBERS.

We are pleased to report a good increase in the number of our Members this year, especially in the Midland and North British districts. This shows that the Association is appreciated by the profession when it visits them.

Last year the number of Members was 224, five of whom have withdrawn their names, and four are dead. During the year forty-nine Members have joined the Association, so that our total number now (July 26th) reaches 264.

This, however, is too small a number for a profession of nearly 3,000 members, and we ask each of the Members of the Association to do his best to endeavour to increase the number and promote the objects of the Association.

FINANCIAL REPORT.

The Treasurer reports that the Association is prospering, as the following Balance-sheet proves.

Dr. NATIONAL VETERINARY ASSOCIATION.—BALANCE SHEET FOR THE YEAR 1884-5. Cr.

1884-5.	£	s.	d.	1884-5	£	s.	d.
To Balance from 1884 Account.....	37	11	11	By Postage	11	12	0
„ 1 Subscription omitted from last Balance Sheet	10	6	6	„ Telegrams	14	9	9
„ 203 Subscriptions	106	11	6	„ Printing	36	0	4
„ Balance of a Life Subscription.....	4	14	6	„ Advertising	10	13	0
				„ Stationery	4	2	0
				„ Reporter	10	10	0
				Petty Cash—Mr. Greaves	1	14	10
				„ Mr. Banham.....	18	3	3
				„ Mr. Wolstenholme	15	6	6
				„ Balance.....	72	7	10
					<u>£149</u>	<u>8</u>	<u>5</u>

To Balance..... £72 7 10

Audited and ound correct,

H. J. HANCOCK, Poplar,
T. G. CHESTERMAN, Whitechapel.

July 20th, 1885.

The PRESIDENT then called upon Mr. J. Sampson Gamgee for the address he had so kindly promised to deliver to the members.

ADDRESS OF WELCOME.

BY SAMPSON GAMGEE, F.R.S.E., PRESIDENT OF THE BIRMINGHAM MEDICAL INSTITUTE, CONSULTING SURGEON TO THE QUEEN'S HOSPITAL.

MR. PRESIDENT AND GENTLEMEN,—On behalf of the committee and members of the Birmingham Medical Institute, I have the honoured privilege of welcoming the third general assembly of the National Veterinary Association to this home of the Medical Profession in the Midlands.

So important, scientifically and economically, are the questions to be submitted to this Congress, that I should not have thought of detaining you one moment, beyond giving expression to a few words of brotherly welcome, had not the officers of your executive preferred a request that I should do something more. With the sincerest wish to place myself at your disposal, I have felt not a little embarrassed in the choice of a subject ; and I hope I am not erring in judgment in believing, that you may find worthy of consideration some thoughts illustrating the bearing of comparative physiology and surgery on the practice of human surgery.

The fertility of the field of comparative study throughout the animal series is matter of common knowledge ; but so are the fallacies of analogy, against which it is impossible to be too watchful. It is now admitted that, after all injuries, restoration of tissue is perfect in proportion as the physiological standard is adhered to, and that repair is an extension and adaptation of the nutritive process. This conforms to the same fundamental laws in all animals. But unity of design is consistent with wide variety in evolution.

Without claiming assent, as to a natural law, for the proposition, that the lower the position of an animal in the scale of organisation the greater its powers of repair, this is none the less essentially true in principle, and borne out by experience.

How limbs and tails, removed from frogs and lizards, grow again ; how a hydra may be cut into pieces, each of which reproduces the perfect being, without impairment of its own powers of repair and reproduction, are well-established natural facts, ever rich in biological interest, though not so obviously of practical importance. But, when we come to compare man with the higher quadrupeds, analogies and differences have a very different bearing on scientific truths, which immediately underlie surgical art.

The field of comparison has some great limitations. However seriously the human frame be injured, so long as life's spark glimmers, no effort is spared to fan it. Not so with a brute. When it is wounded or diseased, economical considerations at once step in. Only let the working of a very simple sum prove, that the animal's commercial value will not warrant the expense of endeavouring to save its life, and a very primitive art is invoked to solve the difficulty. Thus the veterinary surgeon is precluded obtaining experience in the management of great injuries and operations, which are part of the regular duty of a practitioner of human surgery, supplying material for his most profitable lessons, and scope for his greatest triumphs ; though giving cause for his deepest anxiety.

Then, again, animals are singularly free from some affections requiring surgical aid in man. If we except the remarkable dilatation of the anterior mesenteric artery, frequent in the horse and ass, it is just to say that aneurism is much more rare in quadrupeds than in man. On the other hand, such operations as removal of the ovaries and testicles, which are only exceptionally performed for diseased conditions in the human species, are

practised, for economical reasons, in animals, to the extent of many thousands annually, with almost invariable success.

It is possibly owing as much to the horizontal position as to the temperate and regulated life of quadrupeds, that affections of the pelvic organs, which are such a fertile field in human, are comparatively rare in veterinary surgery. Domestic animals are also singularly free from suppurative articular disease. The shoulder, elbow, and hip of the horse and ox are mainly joints of flexion and extension, clothed with muscular masses, implanted into tuberosities and ridges, ensuring great power and safety from injury. The movements of abduction and adduction, rotation and supination of man's limbs, and the comparative openness of the joints on the aspect of flexion, expose to frequent injuries by dislocation and sprain. These, with constitutional predisposition, are the most prolific causes of articular affections, and open out a wide field for the best achievements of conservative human surgery.

Once inflammatory mischief is set up in a human joint, suppuration is very frequent; in animals very rare. Compare a man's ankle with, its analogous joint in the horse, the hock, which is a very common seat of extra and inter-articular disease. How frequent, though the need of rest be well understood and practised, is suppuration of the ankle! How rare is it in the hock! though the cause of lameness is so frequent in this joint, and it is so difficult to rest it.

The difference has a great bearing on the etiology of suppuration, and on the question of wound treatment; and is due to a variety of causes. Beasts are always temperate; and, in comparison with many men, virtuous. Their procreation is largely governed by interested intelligence, and hence they are comparatively free from the blighting and rotting operation of hereditary disease. Then, again, animals live mostly in the open air, under conditions which are, on the whole, more favourable to a high standard of physical health, than are those enjoyed by a large proportion of the population. Whereas even small wounds in man are attended with serious and sometimes fatal results, recovery is almost the invariable rule, even after large wounds, in animals. To one cause of traumatic death these are more subject than man, and that is tetanus; owing probably to the exceptional operation of their ordinary cause of safety, exposure to the open air.

Those who are old enough to recall the days of extensive blood-letting can fall back upon experience, which bears very cogently on the comparative physiology and surgery of wound-healing. However dexterously practised, the opening into the jugular vein by fleam and bloodstick makes an important wound, which almost invariably heals by the first intention, with the transfixing pin and surrounding tow;—a triumph of the metallic suture long before the days of Marion Sims and Sir James Simpson.

But if healing can be so safely relied upon in the open air; if it be true that tissue repair is a natural physiological process; that the laws of physiology are essentially alike throughout the animal series; and that mortality from wounds is extremely rare in animals below man; what becomes of the doctrine which, assuming the maleficent potency of ubiquitous atmospheric germs, gives elaborate directions for their destruction, and is styled "a new surgery"?

Looking through the results of my operations, I am struck by a series of several hundred operations on the rectum, for fissure, fistula, and hemorrhoids. I have never lost a case, and have scarcely had a bad symptom; what is the explanation? Anything more foul than an ischio-rectal abscess cannot well be conceived; evacuate it freely and it may heal; but if it does not, the worst that happens, under good management, is a fistula in ano, which heals rapidly and solidly, so soon as perfect rest is ensured by division of the sphincter, the parts kept clean and dry, and left alone.

In operative surgery, familiarity does not breed contempt. Experience teaches, what science explains, that any opening made in the body may become a cause of serious complications; that even a slight operation may prove fatal. By way of precaution, "*superfluum non nocet*" is a good maxim; and, provided he be intelligently painstaking, a surgeon may operate on persons with good constitutions, with no greater risks than attend the performance of operations on animals.

The great majority of deaths after surgical operations are disasters, which treatment on physiological principles is all-powerful to prevent. But, while insisting on the scientific soundness and practical simplicity of the physiological treatment of surgical lesions, and while maintaining that experience in man and animals is opposed to the theory that the atmosphere is full of maleficent germs, ever ready to penetrate and poison any breach of continuity in the tissues, I concede that, as accessories and in due circumstances and proportions, antiseptics have their value.

In veterinary practice, the traditional use of preparations of tar and turpentine, of sulphate of copper and corrosive sublimate, and of the tincture of aloes, benzoin, and myrrh, as antiputrescents, may be cited as an illustration of old custom sanctioned by scientific progress. But—to quote from my address, "On the primary union of wounds," before the International Medical Congress held in London in 1881—"The great antiseptic is life. Rely on the preservative power of living tissues; be physiologists always while you are surgeons, and you will have fewer and fewer opportunities of studying pathological states after surgical injuries and wounds."

Without trespassing on your time with details of treatment which can only admit of limited application in your sphere of practice, I beg leave to express a hope that one result of such congresses as this may be to bring more prominently before the medical profession the scientific interest, and before the public generally the great economical and social importance, of the cultivation of veterinary science.

It is pleasing to recall that in the establishment of veterinary education and research, no two men in Great Britain contributed more powerfully than did John Hunter, and his attached friend and illustrious pupil Edward Jenner. The great conception of John Hunter's life was the fundamental unity pervading organic nature. How indefatigable he was in the study of the structure and functions of animals and plants, of the phases of their developments, and of the causes of their decay,—in demonstrating by experiments the laws of their growth and repair, every page of his works tells. Nor was Edward Jenner less of a student, though not so great an original, in the same line of research. Hunter's interest, in the foundation of the veterinary profession, was not merely that of a scientist, but of a very earnest and practical helpmate. He took shares in the London Veterinary College at its formation, and fostered its growth with his influence, when still a poor man, though at the very zenith of his fame. This is not the place, I am not the man, to debate what progress might have been made, if John Hunter's impulse had been worthily acted upon. That is one of the many interesting questions to be solved by the future historian of the veterinary profession.

Whatever the past, there is no doubt that such a meeting as this is full of hopeful indications for the professional future. When you assemble in such a congress, the medical profession cannot but feel conscious of the flattering homage of imitation; for associations and congresses are recognised factors in our public life.

It is proverbially true that it is possible to overdo most good things; and before now, when attending vast medical gatherings in this and foreign countries, I have been disposed to ask, What good is to come of all this bustle? All might not be disposed to give the same answer. Those who

live in large centres, with access to libraries and professional societies, might prefer solitude to a throng. But, to the hard-working practitioner in country districts and small towns, these reunions are a new life, and make him feel the reality of a professional brotherhood. That is in itself a real gain ; but the question remains none the less an open one, whether such congresses are not rather too numerous?

After all said and done, professional advancement in the body corporate, as in the individual, must be decided by personal worth ; by sterling work ; by generous and just recognition of merit, wherever found ; by kindly consideration for difficulties ; by cordial and courteous co-operation, irrespective of age and rank. It is so, and always must be so, in all professions. A common experience teaches, that whatever be the aim and plan of work, men of active imaginations must be satisfied with rest below their aim. Only let that aim be TRUTH, the effort to realize it honest and untiring, and the rest cannot fail to be, to the kindly and patient toiler, what my greeting is to you, my professional brethren—"WELCOME."

Professor AXE: I have just had placed in my hands a request to propose a vote of thanks to Mr. Samson Gamgee for the very elaborate and interesting address which he has just occupied our attention with. It hardly seemed necessary to be requested to move, in order to perform this function ; I have no doubt there are many here, who, if it had not been officially relegated to me, would spontaneously have risen to perform the office which I have the honour to fill. I have sat here, and I must confess that a thrill of admiration has been running through me during the whole period we have been addressed by Mr. Gamgee. It is very gratifying indeed to know that he has the interests of our profession at heart ; that he has returned, if I may be permitted to suggest it, to his old love. Professor Gamgee is not unknown to our profession—I believe I may be permitted to say that he is one of us ; and it is very refreshing to us to find that in a new and higher sphere of life he continues to work with us, by recording those beautiful analogies which he has brought before us this morning, and by welcoming his old love to the town of Birmingham. I cannot tell you how much I have felt the force of the parallels which he has placed before us ; the beauty of the analogies put before us by him are inexpressible, and I hope Professor Gamgee will receive from us the unanimous vote of our best thanks for the great interest he has taken in the meeting, and the great pains and trouble he has put himself to with a view of bidding us welcome here.

The PRESIDENT: I am quite sure it will be unnecessary for me to put this to the meeting ; the motion which Professor Axe has made must be carried by acclamation. In my opinion, he has propounded to us theories well worthy of our consideration, and has given us in this hall—his own home—an address which is not only worthy of the name of Gamgee, but of the medical profession to which he belongs. Mr. Gamgee, I am quite sure that, without putting it to this meeting, I may convey to you our heartiest thanks, on behalf of the National Veterinary Association, for the address you have given us to-day. (Applause.)

Professor GAMGEE: I recollect, sir, that your address has to follow, and the time is very brief ; therefore I shall only say a very few words. Though not unaccustomed to the use of words in speech and writing, I know that, however fitted they may be to the expression of opinion, they are at the same time very inadequate. I feel very much the kindness of the thanks ; I feel very much the generosity with which you have received the poor words that I have addressed to you. I can only say, as the chief officer of this institute, and I think I have some of my colleagues present, we shall be happy to do all we can to render your stay here comfortable ; I regret cannot do more.

I record with affectionate remembrance the days of early hard work in the veterinary profession, and trust, if a few more years be spared me, to press humbly onward, that you may not regret that on the 25th May, 1849, I was admitted a member of the veterinary profession.

PRESIDENTIAL ADDRESS.

BY HARRY OLVER, F.R.C.V.S., TAMWORTH.

GENTLEMEN,—In assuming the presidential chair of this Association, allow me first to thank you very sincerely for electing me to so distinguished and honourable a position. I cannot but feel that many gentlemen around me, would have far more efficiently performed the duties of the office, and have added dignity to the position. I, however, will do my best, with your assistance, to bring this third meeting of the National Veterinary Association to a successful issue. I am sure I may safely rely on your support; for you must feel with me that it is not an easy matter for a young man, as well as a young member of the profession, engaged in the every-day routine of a country practice, to follow in the footsteps of such a veteran and well-known hard-worker in the interests of the profession generally, and of veterinary medical associations in particular, as my immediate predecessor, Mr. Greaves, or of your first President, Dr. Fleming, who is so justly distinguished as a veterinarian, not only in this, but almost every other country.

Happily, the first part of my duty at this meeting—the delivering of an inaugural address—is very much simplified, and its importance lessened, by a part of the time allotted to the President for that purpose being occupied far more usefully and eloquently in the address of welcome which Mr. Sampson Gamgee has been kind enough, as President of the Midland Medical Institute, to deliver to us. If this meeting had ended with that address, I am sure you would feel that we had not journeyed to Birmingham in vain. I deem it a subject of very earnest congratulation to the members of this Association and the profession generally, that we, as the National Association, should, in visiting the metropolis of the Midlands, not only have had this splendid building (the home of the medical profession of the district) voluntarily placed at our disposal, free of expense, for our meetings, but that its President should have come forward and welcomed us with an address full of eloquence and cordiality. Nothing could more plainly show the good feeling of the older profession of human medicine to the younger branch of veterinary surgery than the reception we have received; and I trust it may have the effect of silencing the few who would still quarrel with their friends. For it cannot be denied that we owe a great debt to the medical profession; they have been the pioneers in all the branches of our study; our anatomy is comparative from the human frame; physiology is still taught from works written by medical men; most of the standard works quote the authors of the sister science; some of the professors at our colleges, as well as examiners of our students, hold medical diplomas; whilst we are proud to find men like Mr. Gamgee, taking so distinguished a position in the older profession, also holding the veterinary diploma.

It is true that there is a feeling in our profession, with which I entirely agree, that we ought to be able to find amongst ourselves gentlemen qualified to hold all the different positions named, and I believe there would be but little difficulty in making our Examining Board a body of veterinary surgeons. I take it to be a healthy sign that this feeling should exist, as it is an evidence that our status is improving; and it is no disgrace to us as a profession that we have sought outside assistance in our teaching and examining bodies, when we remember that the first attempt at true veterinary

teaching commenced less than a century ago in this country ; since which time our profession has been struggling onwards and upwards against many difficulties and disappointments, and with but little outside support. But I think we may fairly congratulate ourselves that in 1885 we stand, in every sense of the word, in a better position than at any previous date. Up to the present, as I have said, we have had to look up to the medical profession for great assistance. I hope, however, that the time is not far distant when we may fairly claim to stand side by side with the older body in educational requirements, scientific knowledge, original research, and all that tends to make a profession great. That the two professions, working together in unison, can render to each other material aid in elucidating many matters which still baffle our scientific men, there can be no question. The transmissibility of many diseases from man to animals, and *vice versa*, is an admitted fact. How far the ingestion of diseased meat affects the health of man ; to what extent the ever-increasing consumption of milk from tuberculous or other diseased cows influences the mortality in this country, particularly amongst the infantile population ; how veterinary sanitary science, as affecting unhealthy and badly situated and drained cowsheds and dairies, and the uncleanness of the various utensils used in connection with milk and other dairy products, may and do disseminate disease in the human frame—are a few only of the many interesting and important matters that can only be properly dealt with by experts in the practice of both human and veterinary medicine. The further we examine into the recent researches of medical science, the more convinced must we be that, startling as have been the discoveries made as to the life-history of the various disease germs, or “microbes,” and their effect on the animal body, that we are as yet only on the threshold of this great subject ; and it is easy to believe that the continued investigations of such men as Pasteur, Koch, Lister, and others, may cause almost a revolution, not only in our knowledge of the diseases themselves, but also in the manner of combating with them. The success which has already attended Pasteur’s experiments (in the cultivation of disease-producing bacilli) on the so-called blood diseases of cattle, by inoculating healthy animals with the disease germs in a weakened condition, is causing this line of thought and action to be followed by others. And although its success in the hands of a Spanish physician, in insuring the patient from a future or fatal attack of Cholera is doubted (due, probably, to the disease-producing power of the microbes not being sufficiently attenuated), still I am convinced that there is much to recommend itself to us, as veterinarians, in this mode of procedure for combating so many of the diseases of an epizootic and enzootic nature, which assist in decimating our flocks and herds, and so impoverish the agricultural industry and lessen the wealth of the nation.

I hope the agricultural returns, as they become better understood in this country, especially with reference to the number of animals that have died in each year, and from what causes (which is a new departure in these returns for the present year), will have the effect of opening the eyes of the public, and agriculturists particularly, to the enormous losses of live stock which take place every year from so-called blood diseases of an enzootic character, many of which are unquestionably due to dietetic and other local causes. As education advances, and these matters become better understood, I believe we shall, as veterinary surgeons, enter on a new era of usefulness, especially in country districts ; that we shall no longer be looked upon as “necessary evils,” and compounders of drugs for the treatment of diseased animals ; but that our knowledge will be utilised in what is, in my opinion, a far more valuable manner, in the prevention of disease, and so bring veterinary sanitary science, where it undoubtedly ought to stand, in the fore-

front of our professional training, and become a recognised institution in the land. If my surmise is correct, are we prepared to accept the responsibility of advising in such an important subject?

As far as our knowledge extends in the present day, I believe we are. But I would ask, Is the subject of Prophylaxis, or Preventive Medicine, sufficiently studied and recognised in this country? I think not.

Inoculation for Pleuro-pneumonia has its advocates—of which we hope to hear more to-day—but I have not heard of Pasteur's experiments being followed up or in any way acted on in this country. For the prevention of disease we have hitherto mainly depended on the action of certain drugs, popularly known as blood-purifiers. That the administration of such drugs, with certain dietetic changes, often proves more or less effectual, there can be no doubt; but do we thoroughly grasp the subject? The drugs act; but how?

This question brings me face to face with a very difficult problem—one that can scarcely be satisfactorily answered. The veterinary profession has undoubtedly made rapid strides in anatomical, physiological, and pathological science; but has its knowledge of therapeutics—or, more properly speaking, pharmacology—advanced in the same ratio? I think not. Practical therapeutics are, I believe, but little taught in our schools. True, we are told that certain drugs act as anodynes, others as diuretics, some as tonics, that purgatives increase the peristaltic action of the bowels, and so on through the pharmacopœia. But do we, as veterinary surgeons, sufficiently study this question?—or are we not inclined to border on empiricism, by using some well-known formula to the exclusion of many more than useful drugs? I admit that this is a question as much, if not more, for the practitioner than for the student; for it is only by practically testing on more than one animal or one class of disease that we can deduce correct conclusions. I am convinced that there is a great field for study and advancement in the matter of practical therapeutics and pharmacology. Already the use of the hypodermic syringe, the inhalation of certain gases, the injection into the trachea for the destruction of parasites lodged there, and others, mark progress which, I hope, will continue; but I would suggest that, whilst giving new drugs a fair trial on the principles of what are termed “rational therapeutics,” we must avoid being carried away by fashion or enthusiasm, to the neglect of many old and valuable remedies which can never be safely left out.

Since the meeting of this Association in Manchester last year, there have been no particularly burning questions as affecting veterinary politics. One subject—that of the advisability or otherwise of rescinding a clause of the Charter obtained a few years since—is on the agenda for discussion at this meeting, so I will not further refer to it now. There is, however, a very important item, which will be one of the landmarks of the profession for many years to come. I allude to the commencement of a building in Red Lion Square, London, as the home of the profession, the place of meeting of the Council, and the Alma Mater of the future generation of veterinary surgeons in this country. I am glad to know that it is to be a building worthy of the profession, and I think the Members of Council are to be congratulated, and through them the profession, for having taken steps to give us a building of which we may be proud.

Since our last meeting, this country has been conducting military operations of a very arduous nature, in a most trying climate, and against a valiant though undisciplined foe. Through this trying ordeal no department of the British Army has given more general satisfaction than the Veterinary Department, and we have all seen with pleasure and pride that these services have been recognised, not only by the press and the public, but also by Her Majesty the Queen, who has been pleased to receive their representatives on their return to this country, in company with other distinguished officers.

Gentlemen, you have heard the report of our Secretary, which, especially as to the increase in the number of members of this Association, is highly satisfactory. I hope, as years pass on, we shall see a still larger annual increase, believing, as I do, that such associations—and this one in particular—will do more for us as a body, by cementing friendships, interchanging professional opinions, discussing scientific and other subjects, and presenting to the public a united profession, than any other means that we can take. Individual efforts, however well-sustained, but seldom succeed, whilst the demands of an associated body, with schemes well considered, as they would be, rarely fail.

Professor WALLEY: I rise to propose a vote of thanks to our President. I am satisfied that all who have listened to his address will recognise that he has thought over the matter he has delivered to us, and done it with a view of inducing in our minds a desire to improve in our profession.

The motion was carried by acclamation, and the President briefly replied.

MAJOR SUBJECT I.

PLEURO-PNEUMONIA.*

BY PROFESSOR T. WALLEY, M.R.C.V.S., PRINCIPAL OF THE ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH.

Introductory Remarks.

IN undertaking at the urgent request of the Executive Committee of the National Veterinary Association to prepare a paper on the subject of Pleuro-pneumonia, for discussion at the Annual Meeting on the 4th prox., I feel myself placed at a considerable disadvantage on account of the limited time—a few days—placed at my disposal for its preparation. Notwithstanding this, I have derived some pleasure from the fact that in the time of its difficulties I have been enabled, however feebly, to give an Association, in whose welfare I take a great and abiding interest, a helping hand; and I feel sure that my fellow-members will be ready to meet my efforts in this direction in a charitable and forbearing spirit, and not be disappointed when they peruse a fragmentary and imperfect production, after having expected an exhaustive and elaborate essay.

To sit down and write an original paper would, with so short a time at my disposal, have been impossible. I have therefore taken advantage to a large extent of the matter contained in "The Four Bovine Scourges," written in 1879.

The greater part of this paper then, it will be understood, is made up of extracts from the text of that work, the original matter being altered only in accordance with the advance of our scientific knowledge since the date of its publication.

In order to avoid misapprehension, new matter is distinguished by a black line placed opposite thereto in the margin of the text. The official designation of the disease, "Pleuro-pneumonia," is the one used throughout this paper, and for brevity's sake the initial letters P.-p. are largely utilised.

The points in connection with Pleuro-pneumonia to which I have mainly directed attention are—(1.) Its Nature and Methods of Dissemination; (2.) Symptomatology. Course, and Diagnosis; (3.) Pathological Anatomy; (4.) Pathology; (5) Prevention and Suppression.

* Professor Walley kindly prepared this Paper at the earnest request of the Provisional Committee, owing to Mr. M'Gillivray declining at the last moment to homologate the promise given by him in November 1884.

NATURE AND METHODS OF DISSEMINATION.

Is Pleuro-pneumonia an Infectious or a Contagious Disease, or both?

Before attempting to answer this question, we must inquire briefly into the application of the words infectious and contagious, though I may remark in passing that the two terms are now often used indifferently.

The great majority of experts define an infectious disease to be one which is propagated by the pulmonary and cutaneous *exhalation*, and the pulmonary and cutaneous *inhalation* of the germs of the particular disease ; and a contagious disease, one in which there must be actual contact of fluid or solid matter (containing the elements necessary for the propagation of a disease) with a living body ; and further, one in which the virulent principle can be located in a particular solid or fluid of the body, and which will with certainty be reproduced in the system of a healthy animal, and in its reproduction will give rise to the development of local manifestations exactly identical (only differing in degree) with those which marked its existence in the system of the original host.

With which of these definitions does the nature of P.-p. agree? I answer, unhesitatingly and unqualifiedly, with the former. If we take the fluid from a small-pox or vaccine vesicle and introduce it into the system of a healthy animal, we produce modified—but distinctive—Small-pox and Vaccina. Can we make the same assertion with regard to P.-p.? No ; for up to the present time (so far as I am aware) no person has succeeded in producing a *true* form of the disease by the artificial introduction into the system of a healthy animal of any product or products derived from the body of an infected beast.

The opinion has been promulgated, dogmatically, by some veterinary surgeons, that P.-p. is *only* propagated by “the actual cohabitation of healthy with diseased animals.” Is this in accordance with clinical experience? Certainly not. It may be in accordance with experimental experience ; but, unfortunately, experiments are too often fallacious in their teachings,* and although they are in many ways extremely valuable, their results cannot be placed in opposition to clinical facts : one natural positive proof is worth a myriad of artificial negative ones.

In a very large experience, dating from my earliest connection with the profession, and gained in extensive stock-raising and dairying districts, I have seen outbreaks of the disease occurring on farms which were perfectly isolated, and in which the whole of the stock was home-bred. I have seen dairy after dairy decimated of its denizens, and after every precaution in the way of disinfection had been taken, and the byres left empty for periods varying from three to twelve months, the disease again break out on the re-introduction of fresh stock, even though the animals had been brought from districts in which the disease was unknown ; and although every possibility of their coming in direct contact with diseased animals had been carefully guarded against.

In a matter of so much importance, I have thought it advisable not to allow my opinion to rest on its own merits, but have taken the pains of obtaining the views of many veterinary surgeons, whose extensive experience of the disease entitles them to speak with some authority on the subject. These views I here introduce.

In an article by Professor Laws in the VETERINARY JOURNAL for June, 1879, the statement is made that Professor Baldwin, many years ago, pro-

* The truth of this assertion has never been more forcibly proved than in the result of the experiments lately carried on at the Brown Institute in connection with the nature of Foot-and-mouth Disease.

pagated the disease to a healthy animal by introducing a piece of sponge saturated with Pleuro-pneumonia lymph into its nostril.

My colleague Mr. Baird says that he has seen the disease make its appearance in remote and isolated districts in Fifeshire, where the stock had been home-bred for many years, and where the animals had never come in contact with others.

Messrs. Peter Taylor, Manchester; Blakeway, Stourbridge; Robertson, Kelso; M'Gillivray, Banff; Thomson, Aberdeen; * Carless, Stafford; Dayus, Dorrington; Edwards, St. Albans; * Alexander Grey, Sen., Edinburgh; * Waugh, Stirling; Storrar, Chester; Aitken, Dalkeith; Cunningham, Slateford; Reid, Leith; Rutherford, Edinburgh; Good, Ludlow; Welsby, West Derby; Kettle, Market-Drayton; Professor Williams; the late Mr. Dewar, Midmar; Dunlop, Kidney, and Giffen, Belfast; Davis, Cookstown; Kerr, Ballymena,—all concur in the opinion that P.-p. is propagated by other means than by actual cohabitation.

Mr. Carless says: "P.-p. can be propagated by exposing healthy animals to the excrements of those which are diseased (especially in the advanced stages of the disease); also by hay, straw, etc., kept in the place with them, as easily as by direct cohabitation."

Mr. M'Gillivray says: "Although I consider actual cohabitation the most common and the most easy way in which P.-p. is propagated, my experience proves that it is also spread by indirect means,—as by straw, hay, dung, etc., which have been in contact with diseased animals. This is indirectly proved by the fact that healthy cattle brought into sheds from which diseased ones have long been removed become the victims of the disease." He further quotes a remarkable outbreak (in support of this assertion) which came under his notice three years ago. A farmer in Mr. M'Gillivray's neighbourhood had P.-p. amongst his stock, but after losing a tolerable number, he got clear, disinfected his byres, and also plastered the walls. Twelve months after, the rats infested the whole of the farm buildings, and, along with other mischief, made extensive operations on the old walls,—tunnelling holes through them in every direction, and turning out a good deal of the plaster from the old crevices. This *debris* fell into the fore-stalls out of which the new stock of cattle were feeding; the result was a fresh outbreak of Pleuro-pneumonia. Mr. M'Gillivray took great pains to ascertain the possibility or otherwise of this outbreak being due to any other cause than the one cited, but failed to find any.

Mr. Waugh says: "I have seen the disease break out in a large stock, housed in byres from which diseased cattle had been previously removed, twelve months after the new stock had been put in."

Mr. John Aitken has related to me a case in which a gentleman had two cows in his possession—one for four, the other for three years; the former was sold fat, and a short time afterwards the latter evinced symptoms of the disease, and was slaughtered. These animals were effectually isolated by a high wall, and it was proved that no other cattle had come in contact with them.

Professor Williams says: "I have seen the disease break out in a byre which had stood empty for a period of three months; every precaution had been taken to avoid contact with other animals in the introduction of the new stock."

Mr. James Thomson says: "I am decidedly of opinion that P.-p. is not propagated by any other means than by the air becoming impregnated with the breath of a diseased animal, and subsequently inhaled by a healthy one.

* Those so marked have died since the "Four Bovine Scourges" was published.

I believe that the infecting distance is greater than is generally supposed ; but it is necessarily much influenced by currents in the byres, and the strength and direction of the wind in the open fields."

Mr. Storrar says : " I believe that Pleuro-pneumonia can be, and often is, propagated by other means than by direct cohabitation. In my own practice I was satisfied that a woman who attended a diseased stock was the means of communicating it to healthy animals."

The late Mr. Wm. Dewar said : " I am convinced that P.-p. is frequently propagated by other means than by direct cohabitation (if required, I can prove the assertion). I believe it to be propagated by the dead animal, and by excrementitious matter."

Mr. George Fleming has recently communicated to me the history of an outbreak on the farm of an intimate friend of his in Staffordshire, in which no possible means of infection could be traced, except by the indirect means of a butcher..

Mr. H. Edwards says : " I had a cow in my possession for a period of several years ; my brother requiring a cow, and not being able to find one to his taste, I offered him mine ; he accepted her ; she was removed to his house, a distance of four miles (totally isolated from all others) ; he had her two years in his possession. In December, 1874, she was attacked by P.-p., for which, as inspector, I ordered her to be killed, and afterwards made a *post-mortem* examination. No P.-p. existed, neither had any existed for a long time, within my radius as inspector."

In the VETERINARY JOURNAL, for December, 1876, E. F. Thayer, V.S., Commissioner of Contagious Diseases among Cattle, Massachusetts, U.S.A., says : " P.-p. was first imported into Massachusetts in 1859 from Holland, and by the sale of cattle was carried to different sections of the State. The first outbreak occurred sixty miles distant from the farm where the Dutch cattle were kept, confirming the opinion of those who believed in the contagiousness of the disease." Mr. Thayer further quotes the opinions of Delafond of France, Hertwig of Berlin, Verheyen of Brussels, Ischeulins and Hermann of Switzerland, in support of the view that the disease is spread by other means than by direct cohabitation ; and he also asserts that " the experiments made in Massachusetts, by the order of the Governor and Council, were conclusive of the contagiousness of the disease ; also of the fact that an animal should be in the early stages of the disease in order to convey it to others."

The controversy between the Magistrates of Shrewsbury and their inspector, Mr. Litt, on the one hand, and the Privy Council authorities on the other, is so recent as to render it unnecessary for me to allude to it any further than to say that Mr. Litt adhered to the opinion which he had given, that P.-p. was propagated by other means than by direct cohabitation—as by hay, straw, dung, etc. ; and that in this opinion he was firmly supported by the Magistrates.

In the VETERINARY JOURNAL, for August, 1876, the editor, Mr. George Fleming, quotes from a paper on the subject by Mr. Lydtin, of Eppingen, Baden (a gentleman with whom I am acquainted, and whose intelligence is above the average), a remarkable instance of propagation of the disease by means of dealers carrying with them flesh from a diseased animal, and leaving it in healthy premises. Mr. Fleming further remarks that several instances of propagation of the disease by means of flesh are recorded by foreign veterinary surgeons.

It must not be assumed that all animals that are exposed to the infection contract the disease ; we know, on the contrary, that many, although placed under circumstances ever so favourable for its reception, withstand the effects of the poison altogether ; others suffer but very slightly from it, while in a

byre it frequently develops itself first in the cow which is farthest removed from the one which introduced the disease : not only this—cows in byres several yards distant from the one into which the disease has been introduced will frequently become the victims of the disease, and those cohabiting with the affected animal escape.

Again, a lot of cattle may be purchased, and subdivided into several smaller lots, and sent to different parts of a district or farm ; in due time the disease may break out in one or more lots, and the remainder never show a symptom of it.

A very important question in connection with the spread of this disease is the possibility or otherwise of an animal exhaling the virus during convalescence, or for any period after apparent recovery. I am myself convinced that the disease is propagated not only during convalescence, but for a tolerable length of time afterwards, especially if the diseased portion of lung communicates with a bronchial tube ; and several instances have come under my observation in which animals said to have recovered from the disease were the means of introducing the infection into healthy byres. I have also known instances in which “ old stagers ” have been kept amongst stocks of cows for considerable periods, the disease all the time continuing its ravages, and after the slaughter of the chronic case or cases the malady has ceased.

In a paper which I read on the subject several years ago at one of the meetings of the Scottish Metropolitan Veterinary Medical Association, I brought the question of propagation by convalescents prominently forward, and one of the main arguments I then used in favour of the view expressed was the fact, that in the case of several convalescents which I had had the opportunity of watching, I had found a permanent temperature of 103° F., and that these animals were very susceptible to the action of adverse influences. Since that time I have seen several instances in which animals having recovered from the disease, although never re-exposed to the contagion in any way, have developed secondary Pleuro-pneumonia, either in the healthy lung or the healthy portion of the diseased lung, after the lapse of a considerable period from the primary attack.

I find, too, other evidence from two independent sources which strongly favours the view that the disease is propagated by convalescents.

This evidence is to be found—*a*, In an article in the *Veterinarian*, by Professor Ferrein of Berlin ; *b*, In the Annual Report of the Veterinary Department of the Privy Council Office for 1876.

A number of cases of this kind have come under my notice since the above was first printed. In the practice of Mr. Kettle, of Market Drayton, several instances have occurred, and Professor Laws has also directed attention to such cases.

SYMPTOMATOLOGY, COURSE, AND DIAGNOSIS.

The character of the symptoms and the rapidity and violence, or otherwise, of the course of P.-p. depend materially upon the amount of poison received into the system, its virulence, the constitution of the patient, and the attention which is paid to the animal in a medico-hygienic sense.

For convenience of description it is preferable to divide the course of the disease into stages.

The Premonitory Symptoms are in every respect identical with those of other specific febrile affections, *and they are dependent upon the incubative action which is going on in the system.* They are—tendency to isolation ; irregularity of appetite and probably of bowels ; slight listlessness ; erection of hair, especially if the animal is exposed to cold, or cold and wet ; unequal external temperature ; slight shivering, if carefully observed ; and slight diminution in quantity of milk in milch cows.

The most suspicious and reliable symptom is increase of the internal temperature ; in almost every instance it is elevated from 1° to 2° F., and if the disease is already existent in a herd it forms the best guide for isolation and careful watching.*

First Stage.—The symptoms of this stage will be violent or otherwise as invasion is rapid or insidious. In very many cases invasion is so stealthy or so little marked as to prevent the true nature of the disease being recognised until it has advanced even to the second stage. In other cases the symptoms of the first stage are well marked.

They are an aggravation of the premonitory—the erection of hair, which is often dry and hard, the decrease in quantity of milk, the irregularity of appetite, the elevation of temperature, and the tendency to isolation are more pronounced. If the animal is at grass, it will be found in the early morning (or if a cold wind prevails, or there is a cold shower) huddled up under a hedge, wall, tree, building, or stack, or in a ditch or hollow quite apart from its fellows ; the back will, at the same time, be arched.

The secretion of dew on the muzzle may or may not be suppressed ; frequently it is secreted—though in diminished quantity—throughout the whole course of the disease. Rumination, though usually arrested, may be carried on until the disease is well advanced ; so with the secretion of milk, usually diminished in quantity, it may continue to be secreted until convalescence is accomplished.

The animal ceases to lick the skin, but even this natural action may be persisted in until the second stage. In some instances pressure along the dorsal region causes the animal to shrink ; but this is not peculiar to the disease—is, in fact, often absent, and is an accompaniment of common cold, rheumatism, pleurisy, etc.

A cough may or may not be present—as a rule it is, but is overlooked ; if not heard during the examination of the patient, means should be taken to induce it by bustling the animal about for a few minutes, by compressing the larynx, or by turning it from a warm into a cold atmosphere. It is more likely to be evinced if the air is cold or foggy, and is always pronounced, frequent, and irritable if the bronchial mucous membrane (especially of the anterior lobes) is the primary seat of the morbid lesions. The cough is characteristic, usually single, short, and sharp, with the mouth open, the tongue protruding, and movement of the body suppressed as much as possible in order to prevent the production of pain in the act.

Grunting is not so invariable an accompaniment of this stage as of the second ; if it is present, it is performed synchronously with the act of expiration at irregular intervals, and is most certainly induced by giving the animal a sharp poke with the knuckles on the affected side, by the application of pressure over the intercostal spaces, or by causing it to turn sharply round. Striking the ribs also causes the animal to incline the head, with an oscillatory movement towards the side which is struck.

The grunt will be of a short painful character if the pleura is affected ; oppressive if the lung-structure only is implicated.

The pulse is tolerably strong, and, on an average, varies from 60 to 75 per minute, though in some cases—especially where there is much bronchial irritation—it may rise to 90 and become very weak.

The respiration is usually somewhat hurried—more so in some cases than others—but is seldom laboured in this stage. There may be rigors.

The temperature rises to 104.6° , and in severe cases to 107° . The elevation is easily detected—though not accurately measured—in the absence of a

* The Veterinary Surgeon to the Privy Council (Professor Brown) recommends in this, as in all other zymotic diseases, that if suspicion is aroused, and the temperature is elevated, quarantine should be insisted on until the suspicious symptoms subside.

thermometer by placing the forefinger under the tongue. The external temperature is more or less variable. The animal may or may not lie down. The bowels are usually somewhat torpid, and the secretion of urine diminished; and if the animal has been exposed there may be an increased flow of mucus from the nose and eyes. The mucous membranes are not much injected, and the eye, as a rule, is tolerably bright.

In having recourse to auscultation, for the purpose of detecting abnormal sounds in the lungs, great care must be exercised to examine every accessible portion of the chest, as the disease is often at this stage very circumscribed, and a careless examiner may not detect what to others would be of great diagnostic assistance; the fact, too, that the liver impinges on the diaphragm on the right, and the rumen on the left side, and thus diminishes the posterior area of auscultation and percussion, must be taken into consideration. This area will be especially diminished if the stomachs are very full and the animal pregnant.

The abnormal signs which may be detected on auscultation are—(a) Sibilus (wheezing), from diminution of the calibre of the small bronchial tubes by pressure of the effused serum external to them, or from tumefaction of the membrane itself; (b) Crepitation, from the effusion of serum into the bronchial tubes; (c) Friction sounds, produced by the rubbing together of the partially dry pleuræ; and (d) Patches of dulness, from effusion into the lung-structure and the air-cells. Increased murmur (puerile respiration) may be detected in the sound portions of the lungs.

Percussion—unless the lung is consolidated by effusion—assists us but very slightly in this stage.

Second stage.—If the fever has run high in the first stage, it will be somewhat subdued in the second, and *vice versa*. The temperature may show slight declination or may vary. Variations in temperature are sometimes very marked; it very frequently lowers when effusion takes place, and I have often found it lower ($1\frac{1}{2}$ to 5 degrees) when animals have been removed in a float from the byres for slaughter, and allowed to stand in the abattoirs for twelve hours. The pulse much as in the first, though it may become very frequent, up to 90 or 100. The respiration may be laboured; it is always distinctly accelerated, and the grunt and cough are more constantly present. The animal shows great disinclination to move, and, as a rule, when it does so, evinces stiffness, though I have seen young undomesticated animals in such a state of excitement as to cause them to rush over everything or everybody which came in their way. This is misleading to a young practitioner who has only seen the disease in quiet dairy cows. Recubation may be performed regularly, or the animal may stand obstinately in one position with the nose protruded.

The natural functions—appetite, rumination, milking—are, except in mild cases, more or less in abeyance; the quantity of urine is diminished.

In those cases in which the bronchial membrane is most involved, tubular casts, more or less large, of lymph may be expelled by coughing and expectoration. These masses of lymph may be colourless, or of a pale straw colour tinged with blood (from rupture of small vessels), or mixed with mucus and air-globules.

Auscultation and percussion reveal important changes in the affected lung. There may be complete consolidation of the whole or part of a lobe, with blocking up of the bronchial tubes, as indicated by the absence of auscultatory murmurs; or dulness on percussion, over a larger or smaller area. On the contrary, there may be, on auscultation, bronchial respiration, and even a modification of bronchial voice (bronchophony); both being due to the larger bronchial tubes remaining patent, while the lung-structure around them is solidified. The bronchial voice only applies to the grunt or cough,

the sound of which is conveyed to the ear through the consolidated lung and the ribs.

If the consolidation is confined to the central part of a lobe, the posterior remaining comparatively free, so as to allow the air to permeate through it, a loud (almost whistling) to-and-fro murmur is heard.

Absence of sound is sometimes due, not to pulmonary consolidation, but to the formation of pleural adhesions, while, if there is effusion into the chest without consolidation or adhesion, there will be absence of murmur, and the water may be heard gurgling during the respiratory movements. The characteristic breathing of dropsy of the chest in the horse is seldom seen in the ox, and only in a modified form. All pleuritic sounds (except in fresh areas of disease) disappear when consolidation of the lung, adhesion of the pleuræ, or effusion into the chest takes place. If the left lung is consolidated, the sounds of the heart are often conveyed to the upper part of the right chest, at which point they are very audible; as also around the cardiac area. If the right lung, the heart sounds are heard distinctly on the right side.

Puerile respiration in the sound lung becomes more pronounced as the respiratory functions of the affected lung become abolished.

In the third stage, there is total suspension of all the natural functions; the pulse is frequent, weak, and indistinct; respiration short and quick (abdominal), and may be accompanied by a flapping valvular sound in the region of the upper flank, synchronous with respiration—produced by sudden tension of the diaphragm; there may be also twitching of the muscles of the flank.

The eye is dull (but may be bright) and retracted in the orbit; the extremities cold; the muzzle dry; emaciation rapid; elbows abducted; ribs on affected side bulged (*gibbous*). There may be knuckling over of the hind fetlocks, and dropsical swellings of the subcutaneous cellular tissue of the space between the jaws and of the sternum may take place—when between the jaws it is termed *wattles*. Effusion is most extensive when the anterior lobes are affected, and the pericardium involved. Cough and grunt are increased in frequency, the former being weaker, the latter more painful; the nose is protruded to the fullest extent, so as to facilitate respiration; muco-purulent discharge from the eyes and nose is in some cases present; diarrhœa (the discharges being very foetid) sets in, as also does tympany (hoven)—the latter being most aggravated if brewers' draff or potatoes have been the staple articles of food; pain on pressure over affected side is diminished owing to the mortification of the lung, and this diminution may mislead the tyro; there is constant gnashing of teeth; the breathing on the approach of death becomes oral; there is quivering of the facial muscles and dribbling of saliva, and, if the animal is recumbent, it endeavours to preserve its equilibrium on the sternum, the head being protruded to its fullest extent, in order to facilitate respiration. The skin and hair become very dry and harsh; the former, especially in parts devoid of hair—as the vulva, udder, perineum, root of tail, ears, etc.—contracting a yellow tinge, and being frequently covered with abundant bran-like scales from desquamation of the epidermis.

On auscultation no sounds, except perhaps bronchial, are heard in the affected lung; and on percussion there is an entire absence of resonance. Puerile respiration in the sound lung is more marked, while there may be crackling, as the result of emphysema, in portions of the lung, with dulness of the lower part, the latter being the result of collapse from blocking up of the bronchial tubes with serum, lymph casts, or coagula of blood. Abortion in pregnant animals frequently takes place at this stage, and, on the whole, is favourable to recovery.

If the pericardium is diseased, the pulse becomes irregular and the respiration gasping—the latter is also marked when the thoracic effusion is extensive. In these cases the animal usually dies suddenly; otherwise, death is produced by imperfect oxidation of the blood (*asphyxia*), by suffocation as the result of regurgitation of serum from the tubes of the diseased into those of the healthy lung, the serum becoming whipped into foam by the passage to and fro of the air in respiration. Lymph casts may also block up the tubes of the healthy lung and lead to the same result.

The symptoms accompanying the subsequent stages or results of P.-p. will depend upon the changes which take place in the involved lung-structures and will be incidentally alluded to when referring to these changes.

The diagnosis of this disease is a most important matter, as failure to detect it early may lead to very serious consequences.

In the early stages it is often a most difficult thing to give a decided opinion, and indeed the practitioner should always be very guarded in expressing himself until the symptoms are well-developed, more particularly if the disease is not already existent in the neighbourhood. It is liable to be confounded with—(1.) Sporadic Pneumonia. (2.) Ordinary cold. (3.) Pleurisy. (4.) Indigestion, with or without Congestion of the lungs. (5.) Hoose. (6.) Tubercular Phthisis. (7.) Penetration of Foreign Bodies through the diaphragm from the rumen. (8.) Organic Disease of lungs, complicated with Emphysema.

1. *Sporadic Pneumonia*.—As to the differential characteristics of Pneumonia and Pleuro-pneumonia I shall in this place call attention principally to those which are observable during the life of the animal. P. is of a sthenic, P.-p. of an asthenic character; P. occurs only as a sporadic, P.-p. as an epizootic affection. In P. abortion seldom takes place; in P.-p. it is frequent. In P. the lung (or its central portions) is attacked *en masse*, and shades off at the peripheries; in P.-p. it is diseased in patches (always defined, and more or less circumscribed), frequently located in the borders.

In P. there is seldom any want of correlation between the pulse, respiration, and temperature; in P.-p. the pulse may register 60, and the respiration 12 per minute, while the temperature may run up to 105° or 106°. In P. the cough is comparatively strong and bold; in P.-p. short, sharp, and laryngeal, and the grunt of the latter is always absent in the former disease. If there is expectoration the expectorate is in P. rust-coloured or largely mixed with blood; while in P.-p. it consists of fibrin casts often streaked with blood, or mixed with small coagula. In P. the symptoms are sthenic, the attack sudden, and preceded by congestion; in the injured lung there is a tendency to reparative changes, and the affected part may be functionally restored; the disease, too, exhibits a certain amount of amenability to the action of medicinal agents. In P.-p. the symptoms are little marked; the attack is insidious, and not preceded by congestion; the injured lung tends to *degenerative* changes, and is never functionally restored; while the progress of the disease is very slightly controlled by the action of medicines. P. has no incubative stage, and is not as a rule either infectious or contagious; P.-p. has a well-defined, though extremely uncertain, incubatory stage, and is alike contagious (by actual cohabitation) and infectious.

In Sporadic Pneumonia it will usually be observed that, after the lapse of eight or ten days, the respiratory sounds in the peripheries of the areas of consolidation are again restored, whereas in contagious P.-p. these sounds do not return. Moreover, in the sporadic form the temperature (except on the advent of mortification) never lowers in the sudden manner observed during the progress of the contagious form of the disease.

In the diagnosis of the disease eminent veterinary surgeons have pretended that the localisation of the lesions in one (the preference being usually given to

the right) lung, is a sure guide. How much this guide is to be trusted may be gathered from the following record kept by myself in 113 cases occurring between the 1st October 1878 and 1st October 1879 :—

Right lung	.	.	.	.	.	.	.	42
Left lung	.	.	.	.	.	.	.	33
Both lungs	.	.	.	.	.	.	.	32
Anterior lobes only	.	.	.	.	.	.	.	6

2. *Ordinary cold* is distinguished from it by the comparative mildness of the attack, by its evanescent character, by the accompanying catarrhal symptoms, by the lesser degree of interference with the normal functions, and by the temperature seldom exceeding 103° .

3. In *Pleurisy* the cough and grunt are more painful and shorter; the pain on pressure over the ribs is more marked; the mucous membranes intensely injected; the pulse hard, wiry, and very frequent; the respiration abdominal; and great pain is evidenced if the animal is made to turn suddenly. Temperature about 104.5° .

4. *Indigestion* is most likely to be confounded with P.-p. when it is accompanied by pulmonary congestion, and when the third stomach is the seat of the disorder. The grunt of indigestion is more indicative of inconvenience than pain, and cough, if present, is louder and bolder.

5. *Differential characters and symptoms of hoose* :—

1st. Hoose is essentially an infantile disease, and is most largely seen in animals under a year old.

2nd. It frequently attacks lambs and calves simultaneously and spreads regularly, at certain times of the year particularly.

3rd. The cough is an irritable bronchitic or husky one, and is frequently accompanied by expectoration of mucus, intermixed with which there will probably be strongyles, their embryos or eggs; the latter being detected microscopically.

4th. There are seldom any pleuritic sounds on auscultation, and no pain on palpitation.

5th. The grunt of P.-p. is absent.

6th. If diarrhœa is present, the discharges are natural in colour and odour.

7th. Febrile symptoms are less marked.

8th. The natural functions are not so much disturbed.

6. *In the acute form it may be confounded with Acute Pulmonary Tuberculosis*; but in this disease the pulse is more frequent and irritable, and more in relation with the temperature and respiration; the diagnostic grunt of P.-p. is absent, and on auscultation there may be no consolidation, or, if present, it is patchy; previous history, too, is always a good guide.

During the course of the secondary changes in P.-p. it is easily mistaken for *Chronic Pulmonary Tuberculosis*. As a rule, the temperature is higher in the former than the latter, and on auscultation the partial character of the consolidation in tubercle is detected. Here, also, history and collateral evidence must be made use of, if possible.

7. *In penetration of the diaphragm by foreign bodies from the rumen or reticulum*, there is usually more or less fever, cough, grunt, and pain on pressure over the posterior ribs on one side, with dulness on percussion, and absence of auscultation at the posterior part of the chest. In addition, however, there is nearly always marked gastro-intestinal derangement, and if the pericardium is penetrated, symptoms of disease of that structure.

8. *In organic disease of the lower part of one or both lungs—as collapse, cirrhosis following Broncho-pneumonia, abscess, or Tuberculosis—we frequently have emphysema of the upper part*. The former condition gives rise to the physical signs of lung consolidation; the latter materially interferes with

respiration and causes an animal to protrude the nose and abduct the elbows in order to bring the extraordinary muscles of respiration into use, while the inconvenience induced by pressure leads to the emission of a short and sometimes painful grunt. In all such cases a guarded opinion should be given until the opportunity of a *post-mortem* examination is afforded.

PATHOLOGICAL ANATOMY.

In describing the *post-mortem* conditions of this disease, I do not intend to refer at any length to the microscopical appearances of the diseased structures, but to point out those characteristics which are cognisable to the naked eye. Before considering this in detail, it will be as well to glance at the specific *post-mortem* differences existing between P.-p. and other diseases with which it may be confounded. These diseases are—(a.) Pneumonia; (b.) Pulmonary consolidation or hepatisation following sub-acute inflammation (Broncho-pneumonia), as the result of irritation produced by foreign bodies or parasites. The subsequent degenerative changes in a P.-p. lung may be confounded with tubercle and degenerated hydatid cysts, also with the degenerative changes of Broncho-pneumonia, and fibroid alterations of interstitial inflammation. Intercurrent disease of the lungs or other organs, either chronic or acute, may complicate P.-p., and render diagnosis more difficult.

(a.) *A P.-p. lung is distinguished from that of P.* by greater weight (even in the early stages) and friability; by being much paler in colour externally, and variegated—*mottled*—internally; by different progressive stages of disease going on in the same lung: thus a section may show healthy lung tissue, interlobular effusion, red, black, and grey hepatisation, and brick-like hepatisation (sphacelus); by being often diseased in patches (I have seen as many as thirteen characteristic centres in one lung, the involved portions being always well defined and circumscribed, and the pleural surface of the involved area being distinctly raised above the level of the surrounding lung); by the serum showing a greater tendency to gravitate to the lower and healthy portions of the lung, rendering them translucent, and of a buff or greyish-brown colour, and a solidified character—not unlike veal in appearance—without any distinct interlobular or sub-pleural effusion, and without absolute destruction of the parenchyma; by the extensive interlobular effusion, exudation, and hyperplasy; by the transudation of large quantities of serum when the lung is incised or submitted to pressure—this serum sometimes coagulating on exposure to the atmosphere; by the ulcerations and ecchymoses of the bronchial mucous membrane; and by the condition of the thoracic lymphatic vessels and glands.

In P. the lung, both externally and internally, as also the lining membrane of the blood-vessels and the bronchial mucous membrane, is uniformly red or black in colour, and devoid of the characteristics above mentioned; it may crepitate slightly on pressure. A mortified P. lung is intensely black, sometimes green, often of a foetid odour, and the bronchial mucous membrane of a black or greenish hue; a mortified P.-p. lung is of a brick-red uniform colour, and very friable; and, finally, while degenerative processes, when they commence, proceed more rapidly in P., reparative changes are more stable.

(b.) *Consolidated lung resulting from Entozoic or Broncho-pneumonia*, presents at first somewhat the appearance of foetal lung; the pleura is not often involved; the bronchial mucous membrane is intensely red, and is not often ulcerated; a section is parti-coloured—grey and red, the grey portions being friable and cheesy: the lung is not so heavy as in P.-p., does not exude so much serum when pressed, does not show the same tendency to degeneration, and does not degenerate *en masse*, but in small circumscribed patches,

leading to the formation of lobular abscesses and vomicae [the distribution of the lesions, following as they do the ramifications of the bronchioles, is racemose]. In Entozoic Pneumonia filaria are found, either fully matured in the bronchial tubes, or as embryos, with eggs (distinguished microscopically) in the consolidated lobules. If the consolidation results from the accidental introduction of minute foreign bodies into the bronchial tubes, the diseased lung-structure is firm; there is no interlobular effusion, and the secondary changes are most usually—(1.) Suppuration, leading to the formation of circumscribed abscesses, large or small, numerous or few, according to the size, character, and number of the irritating particles: in some cases abscesses are replaced by encystment and liquefaction of the exudate, giving the part on transverse section a multilocular character; frequently, too, the foreign matter—as small seeds, portions of grain, or other vegetable product—will be easily detected in the bronchia, surrounded by an exudate, or lying in the centre of the cyst or abscess: (2.) Interstitial inflammation, with its usual results—Hypertrophy and Cirrhosis. Consolidation from foreign bodies is usually located in the anterior lobes, or at the inferior border of the large lobes.

In order to render my remarks on the *post-mortem* appearances intelligible, it will be necessary to consider them in definite order, under several heads.

(a.) *The carcase.*—I will preface the remarks I have to make under this head by observing that when called upon to examine the carcase of an animal suspected of having been the subject of P.-p., the veterinary surgeon should pay particular attention to the condition of the *pleura costalis*, with the object of discovering whether any diseased or thickened membrane has been removed by the butcher for the purpose of deception. It must not be forgotten, however, that the pleura is often removed with the simple view of getting rid of the unsightly appearance produced by the adhesion of a film of coagulated blood upon its surface, as the result of extravasation into the thorax from the knife having penetrated too deeply (“over-sticking”). In this case, all doubt is set at rest by the firm, healthy condition and colour of the systemic muscles. It is also stripped in Tuberculosis and Pleurisy.

When the pleura has been stripped off, the smooth glistening appearance of the internal surface of the thoracic walls is replaced by a roughened ragged condition, as the result of tearing through of the sub-pleural connective tissue and the costal periosteum. In many instances the butcher will attempt to remedy this by applying a little cosmetic in the shape of warm suet. The use of this material can always be detected by the minute portions of inorganised fat adhering to the parts—these presenting a very different appearance to the small masses of fat which are naturally deposited under the pleura, and which are smooth and firm, with the glistening membrane outside. Some butchers use a solution of gum, white of egg, or the effused albuminous serum from the diseased lungs, to varnish over the stripped portions. The torn fibres of the pleura, although plastered down, can be distinctly seen under the layer of varnish.

Elevation of the fleshy portion of the diaphragm (which is usually left on the carcase) on the suspected side will frequently expose to view portions of diseased pleura which the butcher has not thought necessary to remove, under the impression that, being concealed, it will escape detection.

In the early stages—*i.e.*, when the disease has existed two or three days—the muscles are not materially altered in character, unless both lungs have been much involved, or the whole of one; in which case, as also in nearly all cases where the disease has been extensive and at all prolonged, the exterior of the carcase, owing to the fat being of a deep yellow (icteric) and the muscle of a dark red colour, will possess a peculiar *mahogany tint*, and

the flesh will be dark in colour when cut across—sometimes even tarry. It will also present an iridescent hue, and be devoid of the firm feel of healthy beef. If the disease has been extensive, these characters will be very marked about the fourth or fifth day; and in all cases the changes are due to imperfect oxidation of the blood, and, consequently, accumulation within it of carbonaceous compounds. On exposure to the atmosphere (oxygen) for a short period, the dark colour gives way to a brighter red. When hydrothorax has existed, the muscular portions of the diaphragm and the muscles of the ribs have a macerated or parboiled appearance; they are soft, thickened, and easily lacerated, and a transverse section presents a peculiar yellowish-brown tint, which in most cases is replaced by a bright red (*magenta*) hue and glazing, the latter being most observable after exposure for a few minutes, and by comparing it with the corresponding parts on the healthy side of the chest. In many instances, this glazed appearance extends more or less to the whole carcase—the fore-quarters especially—and is due to *albuminous effusion*. This condition may, on a cursory examination, escape detection, and is always most certainly discovered by stripping off a portion of the peritoneum or pleura. The muscle thus exposed has at first a moist appearance and an adhesive feel; but the coagulation of the albumen soon gives rise to the *varnish-like albuminous glaze*. It must not be forgotten that the muscles of the neck, in all carcasses which have been suspended by the hind legs for a few hours, owing to the gravitation exudation and coagulation of the serum of the blood, have an albuminous glaze; but in these cases the muscles of the hind quarters are healthy, and not glazed.

In the latest stages the albuminous may be replaced by *serous* effusion (the albumen becoming absorbed and used-up in the meantime), and the tissues have a white, watery, and macerated (dropsical) character. Both the conditions above described will be materially modified by the kind of food upon which the animal has been fed, and the healthy or unhealthy state of the system at the advent of the attack.

Considerable alteration (physically) will also be found in the muscular structures when an animal has recovered from the primary symptoms, and succumbed to the *sequelæ* of the affection. Usually the condition last described is present under these circumstances.

Albuminous effusion is only a concomitant, and not a special attribute of P.-p. It is seen in other zymotic diseases—as Rinderpest and Eczema Epizootica—and is due to the primary disturbance in the sanguiferous constituents by the action of the virus. The albuminous serum is probably re-absorbed, in order to compensate for the loss of the nitrogenised constituents of the blood, these having been expended in the support of the disease-producing germs, and the amount of this re-absorption will be regulated by the intensity of the tissue changes induced. The serous effusion results simply from lowered density of the vital fluid.

In estimating the dates at which these various changes in the muscular system, and also those in the lungs, take place, considerable difficulty is experienced, and accuracy is well-nigh impossible, owing to the fact that many animals may have been labouring under the disease several days prior to that on which its symptoms were noticed; this difficulty is further exaggerated by the lack of truthfulness on the part of the owners of animals, who, for purposes of their own, will more frequently than otherwise falsify the date of the attack. The appearances described will be further altered or modified by the manner of death of the animal, and by the amount of blood drained from the system through the carotid artery; but it does not matter how much blood may have been removed, the *mahogany hue* in the one case the *magenta hue* in the other, and the *macerated appearance* of the last, are always more or less perfectly defined.

A very important sanitary question in connection with the use of P.-p. flesh and milk as articles of human food must not be overlooked. In which of the three conditions is the flesh most likely to be deleterious? Before any marked physical change in the muscular tissue occurs, I can conceive no objection to the consumption of such flesh; but I have very grave doubts whether an inspector is justified in allowing it to be used when any one of the three conditions mentioned exist. I would hesitate to pass any flesh as food which gave evidence (by its dark hue) of the existence during life of a high degree of fever, or of imperfect decarbonisation of the blood; and I would be even more decided with flesh of a magenta hue, and in which albuminous effusion existed, as in the stage when this change takes place, the blood, and consequently the tissues and all effused materials, are charged with the virus of the disease; and although, when serous effusion occurs, the germs are dead, and the flesh as a consequence innocuous, it is innutritious—its nutrient value being reversed in the two latter conditions. The milk, as already indicated, is usually more or less diminished in quantity even in the earliest stages; and in the later, the secretion is, more often than otherwise, totally suppressed. In very mild attacks the secretion of milk may continue in tolerable abundance throughout, and, so far as physical and visual examination goes, no change of a deleterious nature can be detected in its quality; I have known calves suckled on diseased dams thrive and do well with it, but when disease exists to any extent, or when secondary changes are going on in the lung, the quality of the milk must be materially altered.

The blood in P.-p., either after or before death, does not possess any distinctive characteristics, except such as result generally from interference with respiration and from the action of any virus—*i.e.*, in the earliest stage of the disease it is nearly normal in character; subsequently it becomes darker in colour and thicker in consistence, but coagulates readily.

So soon as dropsy takes place, the blood becomes paler in colour and of less density, and, although it coagulates with tolerable rapidity, the coagulum is not firm.

In order to facilitate the description of the physical *post-mortem* changes observed in the parts which are involved in P.-p., I shall arrange these structures in the following order:—1. Trachea; 2. Bronchia; 3. Connective Tissue (subdivided into—*a. interlobular*; *b. lobular*; *c. sub-pleural*); 4. Parenchyma; 5. Blood-vessels; 6. Lymphatic Glands and Vessels; 7. Pleuræ. The subsequent changes including also 8. Epi- and Pericardium.

FIRST STAGE.—The mucous membrane of the *trachea* and *bronchia* may show no signs of disease, or it may be of a yellowish-brown colour, be covered with an abnormal quantity of mucus, and present here and there small irregular hyperæmic patches and in some instances petechiæ, or diffuse ecchymoses. Occasionally, also, in very acute cases, the bronchial tubes are more or less filled with serum or coagulated lymph, the latter being semi-solid or largely infiltrated with air-globules; it is sometimes tinged with blood, as a result of rupture of small capillary vessels from the violent expiratory efforts of coughing. Sub-mucous effusion, if present at this stage, is only so to a small extent.

The *connective tissue* is surcharged with lymph, constituting interlobular, lobular, and sub-pleural effusion, and giving rise—(*a*) To the formation of bands of a white or pale straw colour, varying in thickness from $\frac{1}{16}$ th to $\frac{1}{8}$ th of an inch, between the lobules. The areolæ of the tissue are easily discernible; and if an incision is made through the parts, or pressure applied, the lymph, if fluid, exudes and quickly coagulates into a thin jelly-like mass; sometimes, and especially if the animal is in good condition, and has been dead sufficiently long to allow of the lungs becoming cold, the lymph will be found coagulated in the meshes of the connective tissue. (*b*) To a glistening,

somewhat solidified, and moist appearance of the parenchyma, with a slight increase in the depth of colour and in friability. (c) To elevation of the *pleura pulmonalis* in circumscribed or diffused patches; the membrane itself being of a white or a pale straw colour, according to the tint of the effused serum.

The *parenchyma* is always a little darker in colour, is of greater specific gravity, more friable, has a slight granular fracture, and very frequently its section reveals myriads of minute stellar-shaped vascular spots (due to hyperæmia of the capillary plexuses surrounding the air-cells), with occasionally small circumscribed irregular patches of a red or brownish-red colour.

The *blood-vessels* are usually empty; they may contain *post-mortem* coagula of blood or coagula of lymph, but there is no visible change in their coats—the *tunica intima* being of its natural colour, and glistening. There may be, however, capillary obliteration by plugging.

The lymphatic glands and vessels present no material change; the former may be swollen and slightly increased in vascularity, the latter are usually distended with serum.

The *pleura pulmonalis* may or may not be involved in this stage; as a rule it is not; and if it is, there is simply the effusion of a limited quantity of colourless serum on its surface, which may collect in the thorax; or there may be slight exudation of lymph, very friable and but moderately adhesive in character. In occasional cases the *pleura* throughout the course of the disease shows no change except opacity, which is due to alteration of the lung-structure beneath it, interference with its nutrition, or pressure of the enlarged lung.

The general characteristics of a P.-p. lung in the first stage are increase in weight, bulk, and friability, diminution in resilient power, and consequently increased resistance to inflation and decrease in crepitation on pressure; with deepening of colour, and the presence occasionally of ecchymoses or hyperæmic patches in the bronchial mucous membrane, vascular stellar spots in the parenchyma; and effusion of serum into the interlobular and other connective tissue, giving the lung (especially externally) an appearance very similar to that produced by Emphysema.

There is no absolute loss of textural integrity, and the general condition is simply one of *serous* and a moderate degree of *cellular (leucocytic) infiltration*, with the presence of a few coloured corpuscles. These conditions, as also the microscopical characteristics of the other stages of the disease, will be illustrated by specimens prepared by Mr. A. Grey.

The fluid contained in the lung-structure contiguous to the diseased portion differs from that in the latter, in being largely intermixed with air-globules.

SECOND STAGE.—The tracheal and bronchial mucous membrane may be still darker in colour. The petechial and hyperæmic patches, when present, have commenced to undergo degeneration; the portions of mucous membrane covering them may have given way, and allowed of the escape of the extravasated blood into the interior of the tubes, discolouring their contents.

The smaller bronchioles are obliterated either by the effusion of serum or exudations of lymph into their cavities, by the pressure produced on their exterior by peribronchial effusion and exudation or by sub-mucous exudation. In those tubes into which there is effusion alone, the serum becomes converted into foam by the passage to and fro of the inspired and expired air. The air-cells are obliterated by an exudate of lymph.

The serum, which was thrown into the connective tissue in the first stage, has now to a great extent become absorbed; and more particularly is this the case on the approach of the third stage: the interlobular tissue may become somewhat contracted, and, as a consequence, the lines formed by it

may be slightly narrower. In some cases, however, the exudation of lymph into the connective tissue takes place to such an extent at this stage, that the bands become thicker (they are always more solid) than in the first stage.

The parenchyma undergoes a material change. It is more solid and more friable, and the granular character of the fracture is more determined; its colour is either red or black, depending entirely upon the amount of bronchial obliteration and capillary destruction. If the black portions are exposed to the atmosphere, they rapidly become of a bright red or majenta hue; the two conditions (though differing widely from true consolidation) are known respectively as *red and black hepatisation*.

The destruction of the parenchyma at this stage has been attributed to pressure exerted by the effused serum in the interlobular connective tissue. Such is not the case, however; it is due to *parenchymal effusion*, to *capillary engorgement*, and *actual rupture of the capillaries*. The red colour (red hepatisation) is due to capillary engorgement, and to the arrestation of the coloured blood corpuscles (which have escaped from the capillaries) in the meshes of the living structure; the black colour (black hepatisation) is due to total blocking up of the bronchial tubes, and if a section is exposed to the atmosphere, it quickly becomes red. The effused serum of the part, if microscopically examined, will be found to be largely surcharged with coloured corpuscles.

The parenchyma may be easily detached from the interlobular tissue, leaving the latter intact, and causing it to present a honeycombed appearance.

The larger blood-vessels and vessels of supply are more or less obliterated, either by coagula of lymph or blood. If the vessels of supply are not obliterated, the greater will be the probability of the subsequent changes in the lung-structure assuming a reparative character. The capillaries are absolutely broken up or occluded.

The increase in the size of the lymphatic glands is very marked at this stage; in addition they become softened, and, as the result of acute granular and fatty degeneration, their glandular characteristics are entirely lost; they have much the appearance and consistence of Devonshire cream. The vessels are enormously distended with yellow lymph, and can be readily traced (often the size of a quill) from one group of thoracic glands to another and even to the hepatic ganglia in some cases.

The pleura, if affected, is thickened, roughened, and opaque; it is separated from the subjacent tissue by extensive sub-pleural effusion and exudation.

The pleural effusion and exudation, when present, is considerably increased. The effusion will vary in quantity in every individual case; there may be only a pint of serum in the chest, or there may be many gallons.

The exuded lymph is more cohesive, coagulates firmly, and acts as a connecting bond between the costal and pulmonary pleuræ and the pleura of contiguous lobes. The flakes are, as a rule, of a yellow colour, easily broken down, and when stripped from the pleura, leave its surface glistening and smooth.

The general characteristics of the second stage are—a mottled (*marbled*) appearance on section, increase in bulk, density, specific gravity, and friability; loss (to a greater or less extent) of textural integrity, breaking up of the capillary vessels, and, as a consequence, parenchymal extravasation; obliteration of large vessels and small bronchioles, with destruction of the thoracic lymphatic glands.

If compressed, the lung exudes a large quantity of serum (often bloody); if thrown into water, it rapidly sinks; if boiled, it presents the appearance of boiled liver—the interlobular spaces, however, being still very distinct; if

macerated in alcohol, it has also the characteristics of liver, with diminution of the interlobular spaces—the latter being due to the great attraction for water exerted by the alcohol.

If the destructive process is so great as to tend towards mortification, a segregating lymph-band is even now formed, the centre of which will reveal, on section, a distinct vascular line ; and the serum contained in its meshes will be charged with leucocytes. In some cases the lymph-band becomes the means, not only of preserving the contiguous lung-structure from further injury, but also of arresting the destructive process in the diseased portions.

THIRD STAGE.—*The larger bronchia and the bronchioles* are entirely obliterated, either from external pressure, or from submucous or intratubular exudation. The mucous membrane is always thicker, softer, and darker in colour, and its longitudinal ridges are exaggerated ; while in the ecchymosed patches it is distinctly ulcerated ; the surfaces of the ulcerations being of a light yellow colour from collections of degenerated epithelium and lymph, on removal of which the bright red, hyperæmic sub-mucous tissue is revealed.

The tracheal exudation is increased, and occasionally it is mottled from extravasation as the result of rupture of small capillaries and from congestion and inflammation. The calibre of the trachea (and of the involved bronchi) is materially diminished, and its shape altered, by the sub-mucous and peri-bronchial exudations, and thus the difficulty in respiration is increased in this stage. A transverse section shows—1st, mucous membrane ; 2nd, sub-mucous exudate ; 3rd, tracheal or bronchial ring ; 4th, extra-tracheal exudate.

In some cases the larger and smaller tubes are completely plugged by solid lymph coagula, which form perfect casts of their interior, and, when lying in contact with the ulcerated membrane, present depressions and elevations corresponding to the ulcers, giving them also an ulcerated appearance.

The connective tissue and parenchymal alterations in this stage will depend upon the amount of injury sustained by the parts, and the condition of the parenchyma will materially influence the condition of the connective tissue.

If the injury has been severe and the arteries of supply obliterated, with destruction of the arterioles and capillaries, all semblance of lung-structure is lost ; the part, to the naked eye, has a somewhat homogeneous appearance, is a *brick red* colour (the colour being due to staining by the dissolved hæmatin of the blood), possesses a peculiar acetous odour, which, after a time, changes to one of a valerianic character. The reason why the usual odour and colour of gangrene are not developed in a P.-p. lung is that, owing to the bronchial tubes of the affected area being early obliterated, no air, and consequently no putrefactive organisms, gains admittance to the part ; it is extremely friable, and, on section, the only trace of organisation perceptible is in the bronchial tubes and large blood-vessels which resist the destructive process for a considerably longer period than the other portions of the lung-structure. *The tubes are filled with exudate, and the vessels with coagula of blood or partially coagulated lymph.*

The necrosed portion is now distinctly isolated from the surrounding structures by a segregating lymph-band ; hyperplasy of the adjacent interlobular tissue is marked, and there is increased density of the surrounding parenchyma, which becomes translucent and of a cinnamon or dull red colour.

If the injury has not been sufficient to produce absolute destruction of the parenchyma and obliteration of the vessels of supply, changes similar to those seen in ordinary inflammation go on. The red cells become liquefied or

disintegrated, and absorbed ; coagulable lymph is thrown out and becomes consolidated very rapidly ; the connective tissue becomes denser and firmer, and the interlobular portions thicker. The ultimate changes are, as a rule, identical with those of Interstitial Pneumonia. The amount of serum is diminished, both in the connective tissue and the parenchyma, consequently a section is less granular in appearance, and does not exude serum to the same extent as in the early stages ; the involved lobules are tougher, and of a paler colour, sometimes grey, sometimes yellow—constituting respectively *grey* and *yellow hepatisation*, but may eventually become involved in the fibroid changes.

The arteries and veins, as already indicated, become obliterated, either as the result of external pressure, coagulation of blood or lymph, or thickening and ulceration of their coats by inflammatory processes.

The lymphatic glands, if mortification of the lung has taken place, will be found utterly destroyed, sometimes of a creamy colour and consistency, at others resembling an olive green pulp. If, however, the destructive process has been arrested at the termination of the third stage, the gland may show a tendency to reorganisation, and become firmer, denser, and more vascular. The *vessels* are still distended with lymph, the distention being greatest if there is extensive venous obstruction. The coats of the lymphatics will also give evidence of inflammatory changes, by becoming opaque and thickened.

The pleural exudations are considerably altered ; the serum having become absorbed, the albumen and fibrin alone remain. They present a more consolidated appearance, and are more contracted, frequently being reticulated in structure, from the formation of numerous small bands. Granulation commences in the inflamed pleuræ ; and on stripping off the superjacent layers of lymph, a large vascular granulating surface is exposed. The granulations projecting into the layers of lymph leave, on detachment, numerous alveoli on the under surface of the latter. Coincidentally with the development of the granulations tough fibres are formed, which hang (when the layers of lymph are removed) like small threads between the granular bodies. The whole of the lymph may ultimately become absorbed, and the granulations from either pleura coalesce and unite them firmly together.

The characteristics of the third stage are—absolute loss of integrity (death), with segregation of the injured lung ; hyperplasy of contiguous interlobular tissue, and increased density of the surrounding parenchyma. If the destructive process is arrested, the conditions are—absorption of the red cells ; consolidation of the parenchyma ; hyperplasy of the interlobular connective tissue ; *grey or yellow hepatisation* ; and in rare cases, subsequent breaking up and removal of the injured lobules by the action of the adjacent interlobular tissues. In either case, the changes in the bronchi and trachea are ulceration of the mucous membrane, and consolidation of the submucous and extra-tubular exudate.

Accessory Post-mortem Lesions of P.-p.

These are seen—1st, in the adjacent lung structure ; 2nd, in the stomachs ; 3rd, in the intestines ; 4th, in the cardiac pleura.

1st. *The healthy portions of lung* are usually more solid than natural ; the lobules translucent, of a darker colour and less resistant ; ecchymoses may exist in the parenchyma, and effusion or exudation in the bronchial tubes—in which, also, in some instances, a marked increase in the quantity of mucus is observable. The bronchial mucous membrane may or may not be altered in colour, if it is it will be of a *coppery hue* ; and occasionally ecchymoses may exist. The hypertrophied interlobular tissue, not infrequently, under-

goes granular degeneration—usually in circumscribed oval patches—the degenerated parts assuming a greenish-yellow hue, and easily detached from the surrounding parts—leaving loculi.

Emphysema may be a concomitant ; usually, however, it is a subsequent lesion.

The serum sometimes found in the bronchial tubes is simply the result of overflow from the tubes of the affected parts.

2nd. *The stomachs.* As a rule, the first, second, and third divisions are healthy. As in all chronic or prolonged diseases the contents of the second are comparatively dry, and frequently rolled up into large masses ; while the material in the third is dry and hard, the epithelium readily peeling off with the cakes of ingesta and the latter showing the impress of the papillæ on their surfaces.

Occasionally large irregular ulcers of the mucous coat are found in the second, third, and fourth compartments ; these are always preceded by circumscribed hyperæmic circles or extravasations—they are not peculiar to P.-p., but simply concomitants of it and of many other diseases in which an altered condition of the blood is a prominent characteristic ; moreover, similar conditions of the coats of the stomach are observable whenever prolonged contact of vegetable matter (containing, in all probability, acrid herbs) takes place from arrestation of their functions.

P.-p., too, may be accompanied or preceded by Epizoötic Eczema ; in which disease gastric and intestinal lesions are frequent.

3rd. *In the intestines*, hyperæmic patches (especially in the glands when they have taken on vicarious action) and extravasations, followed by ulcerations, are by no means uncommon.

4th. *Cardiac Pleuritis* is a concomitant of the disease ; though, like Emphysema and Pericarditis, it is more frequently a subsequent lesion.

The secondary changes in a Pleuro-pneumonia lung are—

(a) Organative.

(b) Degenerative.

In the parenchyma and connective tissue, *organative changes* only go on when the destructive process is arrested in the second stage, and usually occur in those parts which have not become absolutely necrosed and in which the vessels of supply are partially or wholly pervious.

It must not be assumed that by the use of the term *organative* I mean to imply that the lung-structure is restored to its original condition, or anything approaching to it : a lung once injured by Pleuro-pneumonia is never, either functionally or organically, restored.

One method by which apparent organisation of the injured lung may go on is by the adhesion of the pulmonary pleura, immediately covering the damaged structures, to the contiguous pleura costalis—vessels from the costal, shooting into the pulmonary pleura, and thence into the adjacent lung-structure, thus supplying it with nourishment.

Dead (necrosed) lung may be confounded with, first, degenerated tubercle ; secondly, hydatid or other parasitic cysts.

It is most likely to be confounded with tubercle when deposits of this substance exist in other organs or structures ; but on careful examination the resemblance to the brick-like hepatisation—which remains in the most minute portion of the lung even after the lapse of months—can be distinctly traced.

The necrosed lung is usually in very large masses, though these may be connected with smaller adjacent masses, or even with cavities : it never undergoes calcareous, and not often caseous, degeneration. Moreover, tubercle is always surrounded by healthy connective tissue, and unless degenerated, is continuous with it, not separated from the surrounding tissue

like P.-p. lung ; neither does the degenerative process—unless it is interpenetrated by active granulations—ever commence in the centre, and (unless coincidentally) small masses of tubercle are not found in other portions of the lungs or in distant organs.

It is a matter of great moment, medico-legally, that a degenerated Pleuropneumonia lung should be carefully distinguished from degenerated tubercle ; and not only this, but that the practitioner should be able to give a positive opinion—in the event of the two conditions existing coincidentally—as to which of the two had prior existence, or to which death might reasonably be attributed.

Degenerated hydatid cysts are of a deep yellow colour, show the super incumbent layers of the hydatid structure, usually possess a definite form undergo calcareous degeneration and may co-exist in other organs.

Nearly all other parasitic cysts and exudations occur in small nodules, and more frequently than otherwise undergo calcareous degeneration.

Changes in the Dead (Necrosed) Lung.

Coincidentally with (or in some cases earlier) the actual accomplishment of necrosis, lymph is thrown out from the vessels of the surrounding structures, forming a thin white line of demarcation or segregation between the living and the dead lung ; this line is gradually added to by the formation of new cicatricial tissue, and from the vessels of the internal surface of this encysting wall serum is thrown out, which gradually breaks down the bond of connection between the sac and its contents ; hence, in cutting through such a cyst at this period a quantity of sanious fluid escapes. The separation of the sac from the dead structure is not always complete, and in such cases the *segregating chasm* is interrupted.

In the course of time (depending upon the strength and general healthy condition of the animal's constitution, and the condition of the vessels of supply) great activity takes place in the cyst wall ; large masses of granulations are formed, which gradually extend from one side of the cyst to the other, and present much the same appearance as the moderator bands of the heart.

The encysted mass slowly disintegrates (liquefies) by the agency of the living granulations (the action going on all round the granulations where they pierce the dead matter) into a thin, ichorous pus, giving rise to great irregularity of its outer surface : portions of the mass, when it is forcibly removed, being left in the spaces between the granulations.

All parts of the sac are not equally active ; but the more vascular its internal surface, and the more vigorous the formation of the granulations, the more rapidly does the imprisoned lung become liquefied and absorbed. The granulations, as age advances, become paler in colour and tougher (more condensed) in texture ; and ultimately—if their growth is not checked—fill up the cavity of the cyst ; the lung, in fact, is replaced by an organised fibrous mass, which may subsequently become semi-cartilaginous, or undergo secondary degenerative processes. If the process of liquefaction goes on without absorption, an abscess is formed, the contents of which may be odourless or very foetid. In rare cases—*i.e.*, where the interlobular tissue has not been so much interfered with, but in which there has been destruction of the lobules—the former becomes hypertrophied, and the latter undergoes caseation, and is ultimately removed (by degrees) by absorption without the formation of an abscess—the appearance produced somewhat resembling tubercle.

If the walls of the sac are inactive and of a pale colour, neither liquefaction nor absorption of the dead lung results, and it ultimately resembles a

piece of dried leather, and bears the same relation to the cyst as the kernel of a nut does to the shell. Sometimes the cyst becomes semi-cartilaginous, in which case the dead lung is permanently imprisoned and cannot possibly undergo any change, nor can it work any harm to the system. In some cases ulceration of the wall of the sac takes place and extends through the nearest bronchial tube, atmospheric air gains admittance, the contents of the cyst undergo decomposition, the breath becomes foetid, auscultation reveals a cavernous *râle*, hectic fever sets in, portions of the dead lung with foetid pus, are expectorated, purulent infection (*septicæmia*) follows, and the animal rapidly sinks. If the cyst is completely evacuated, and the animal survives, its walls collapse, become adherent on their internal surface, and produce a cicatrix or puckering externally; and if the thoracic walls have been originally bulged (*gibbous*) they will now, though gradually, fall in.

In many instances small masses of degenerated lung become detached, and, from ulceration and perforation of the coats of a neighbouring vessel, sucked up into the pulmonary circulation: becoming arrested in various parts of the sound portions of lung, they lead to the formation of numerous small (*miliary*) abscesses, which may remain discrete, or coalesce and form *vomicæ*.

In other cases thrombi are detached from the coagula in the injured vessels, carried away by the circulation, and impacted either in the vessels of the sound portions of lung, or in those of other organs; producing infarcts, with their usual results, or multiple abscesses.

The changes in the blood-vessels of the injured lung are those which result from occlusion and inflammation of the vessels in any part of the body, are often well marked, and have been before noticed.

Changes in the lymphatic glands—in those cases in which they are not destroyed by the active processes induced by the acridity of the lymph—are hypertrophy, atrophy, induration, and calcification; while the lymphatic vessels become occluded by the inflammatory changes going on in their walls and valves.

The degenerative changes in the pleural adhesions are molecular and fatty, and lead to empyema, with, in many instances, secondary suppurative pleuritis.

Sub-pleural abscesses occasionally occur, and even, in extreme cases, involve the intercostal muscles, ribs and subcutaneous tissues.

The results of Pleuro-pneumonia in other structures or organs than those originally involved, are—chronic indigestion, chronic tympany, chronic diarrhoea, tendency to choking and occasionally dysentery; emphysema, hypertrophy, collapse or pyæmia of the sound lung; and epi- or pericarditis. All the affections of the digestive organs above mentioned result from one of two causes—viz., blood-poisoning, leading to vicarious ulceration, or interference with the tenth and sympathetic nerves; the latter cause giving rise to debility or partial paralysis of the coats of the involved organs, and consequently interference with their functions.

Emphysema results from several combined or independent causes, as partial immobility of the diaphragm from the pressure of the hepatised lung upon its anterior surface or upon the phrenic nerve; paralysis or atrophy of the muscular fibres of the bronchials, as a consequence of functional interference with the tenth nerve; violent coughing, induced by the lodgment of portions of dead lung in the bronchia; or from the sound lung being overtaxed by its having to take on compensatory action. Depending upon the cause will be the suddenness or otherwise of the attack of emphysema; if it has been sudden, the alteration in the condition of the victim will be very marked, and ultimate recovery—especially if the amount of lung-structure originally injured be large—doubtful.

Epi- and pericarditis are serious results ; the inflammation is intense, both membranes in the earlier stages becoming thickly bestudded with villous-like growths of an intensely scarlet hue, and analogous to those seen in the early stages of tubercle or pyæmia.

The inflammation is the result of conveyance (*auto-inoculation*) of the acrid irritant material from the contiguous diseased lung by the lymphatics,—this conveyance, as with the contaminating virus of tubercle, cancer, and erysipelas, going on only within a limited area.

The ultimate consequences of this inflammatory process in these membranes are—the formation of adhesions which circumscribe the action of the heart, great thickening and vascularisation of the membranes, hydrops pericardii and degeneration of the exudate, the latter giving rise to a large collection of pus in the pericardial sac.

It is seldom that the process extends to the walls of the heart or to the endocardium ; but the lesions mentioned frequently produce sudden death, although the animal may have appeared previously to be thriving and doing well.

Great care is often required in order to avoid confounding these pericardial changes with those produced by the penetration of foreign bodies from the stomach. In the latter case, the course of the foreign body can be traced—its track being marked by circumscribed induration and by discoloration, the latter resulting either from pigmentation or the formation of oxide or sulphide of iron.

PATHOLOGY.

In a paper which I contributed to the *Veterinary Journal* in 1876, I made the following remarks on the pathological characters of the disease :—

“From a consideration of the course and history of the disease and of its morphological characteristics alone, we are justified in concluding that P.-p. is a distinct and specific affection, and that, although the structures which have been injured by the localisation of its lesions, secondarily (unless dead), undergo inflammatory changes ; primarily, the disease is a purely effusive one—*i.e.*, in the initial stage, effusion—simply and purely—is the characteristic lesion ; in the second and third stage, passive are accompanied, and finally succeeded, by active processes ; and in the subsequent changes (which I shall consider hereafter) inflammatory processes alone go on.

“In order to demonstrate the specific nature of P.-p., we have other evidence than that above alluded to—*viz.*, the presence, in the effused serum of the first and second stage, of an immense number of highly refractive and actively oscillating (Brownian movements), though minute, micrococci—similar to those seen in the effusions produced by inoculations—which lose their activity and disappear on the advent of sphacelus ; being in fact replaced by bacteria.”

Numerous observers, since the above remarks were published, have investigated this matter, and many of them have given their views to the world. Thus, in 1880, Willems drew attention to the *special germ corpuscle or microbium* of Pleuro-pneumonia, and stated that he had succeeded in obtaining it from the air of an infected stable, by exposing therein plates containing glycerine or water.

In 1880 the Louvain professors, Verriers and Bruylants, described a Pleuro-pneumonia microbium, and stated that they had cultivated it and experimented with it by inoculation, with the result that the inoculative lesions were materially modified, though the microbia existed abundantly in the fluids thereof.

In 1884 T. Poels and W. Nolen of Rotterdam discovered micrococci in the pulmonary exudations of bovine Pleuro-pneumonia, and they state that

in its morphological characters and in its behaviour under cultivation it is identical with the pneumo-coccus of human Pneumonia ; not only so, but they assert further that artificial cultures of the latter produce in cattle typical Pleuro-pneumonia. Klein, in noticing the statements of the latter observers, takes occasion to express his doubts as to their accuracy, and he is not the only pathologist who has done so.

Great differences of opinion exist as to which part of the lung the effusion is first poured out by—*i.e.*, whether by the vessels of the bronchial mucous membrane, the connective tissue, or the lobules. For some time I held the opinion that the effects of the poison were first exerted on the bronchial membrane, and that the infective action spread thence to the adjacent structures. I arrived at this conclusion from observing that in many instances the bronchial membrane presented traces of diseased action before the surrounding structures were much involved. This opinion I have since seen good reason to modify, as in very many cases extensive parenchymal effusion and consolidation exist with but slight, and comparatively recent, changes in the bronchial mucous membrane ; and I am now inclined to think that the various components of the lung are attacked indifferently.

That the latter is the correct view of the case, I am more than ever convinced, and that while several, or the whole, of the component parts of a lung may be, and often are, simultaneously involved, the primary lesion may be located in either one of them individually. If its primary effects were exerted on the bronchial membrane, it is not likely that we should have so many *small* centres of disease in the lungs of one and the same animal.

2ndly. I think there is not much difficulty in explaining the fact that the greatest amount of secondary interstitial inflammation takes place at the base of the lung, when we consider that here the connective tissue is more abundant than elsewhere, that it is nearest to the centre of circulation, and that it is exposed to the multiplied action of the infective particles contained in the lymph, by the convergence of the lymph vessels towards this particular part in order to reach the pulmonary and bronchial glands. That the secondary inflammatory action is more intense here than elsewhere, is, I think, plainly shown by the ulcerated condition of the proximal extremities of the large bronchi, and by the fibrinous plugs (by which they are usually occluded) giving evidence of far greater age at the proximal than at the distal extremities. It will be frequently found that the proximal portions of the plugs are not only opaque, dense, and hard, but that they show numerous depressions corresponding to the granulations on the interior of the tubes, while the peripheral portions are only semi-solid and translucent.

That Pleuro-pneumonia is due to a specific virus I have, as before remarked, very little doubt, but the exact nature and mode of action of this virus is at present a mystery : that the virus is endowed with great vitality, that it is disseminated by intermediary bearers, that, having once gained access to the system, it reproduces itself, and, like other ferments, produces well-marked local effects upon important organs : and that it produces a zymotic action in the blood—are facts proved by its clinical characters and its general behaviour : but why it should not exert any effect on the lungs when introduced into the system by inoculation, though giving rise to pathological changes in the tissues of the inoculated part exactly identical with those seen in the lungs (the same peculiar microscopical bodies which I have before described being even found in the fluids of the lungs and the inoculated tissues alike) ; why, after inoculation, such a comparatively long period should elapse before any effects are visible ; why its period of incubation is in so many instances of great length ; what becomes of the virus after it is inhaled—*i.e.*, whether it lies dormant in the bronchioles and air-cells, or becomes absorbed into the blood, and circulates and retains its vitality there,

waiting until the condition of the system is favourable for its further reproduction—or, why its effects should be exerted on the lungs alone?—are questions which we cannot at present solve, any more than we can assign a reason for the remarkable behaviour of the poison of Rabies, and the peculiar elective affinities of other vires, or even of toxological agents.

Looking at the fact that the lungs alone present the lesions of the disease, we might be inclined to the conclusion that the instant effect of the virus would be exerted directly upon these organs without the necessity of its being absorbed into the blood, but such is not the case; it is primarily absorbed, producing a febrile action similar to that of other vires, subsequently inducing a local pulmonary lesion, in some way which at present we do not quite understand.

That the fluids of a P.-p. lung produce an infective form of inflammation is certain—the fact being amply demonstrated by its effect on the lung-tissue, and on the tissues of animals (not only cattle, but dogs) and man when introduced therein, and in the bronchial lymphatic glands as it passes through them. One or two peculiarities I may note in reference to this virus, viz., that it does not appear to exert any irritative effects on mucous membranes when applied to them, as I have on several occasions had small quantities of the fluids, while making autopsies, projected into my eyes without experiencing any ill effects; neither do the diseased lungs when ingested appear to produce any other effects upon animals than, in some instances, a moderate attack of diarrhoea; and the lymph does not produce any effect on the bronchial membrane when injected directly into the windpipe, or when it finds its way from the overflowing tubes of the diseased into those of the healthy lobes; lastly, the effects of lymph on the uninvolved portions of lung when it gravitates thereto from superjacent diseased parts, are very different from what is seen in the parts primarily attacked.

PREVENTION.

The consideration of the measures to be employed in the prevention of this disease opens up a wide field for discussion, and it is a point upon which everybody connected with cattle considers himself qualified to give an opinion.

The character and extent of preventative measures recommended depend largely upon the individual views entertained of the nature of the disease—*i.e.*, whether it is infectious *and* contagious, only infectious, *or* only contagious.

Inoculation, as a preventative measure, is the one which claims our greatest attention. It is by no means a new method. Fleming, in his *Veterinary Sanitary Science and Police*, vol. i., p. 431, directs attention to the fact of its having been proposed and performed by Willems of Hasselt (Belgium) in 1852; and that at that time the operation was much discredited (probably from a want of sufficient observation) by a large majority of veterinarians. Very recently the fact has been brought to light that the operation is, amongst the Moors of Senegambia, one of great antiquity. An annotation in the *American Journal of Comparative Medicine and Science* for July, 1885, will show this:—

“PREVENTIVE INOCULATION OF PLEURO-PNEUMONIA.—Certainly one of the most interesting historical and zoological facts recently unearthed by veterinary inquirers is one relating to the preventive inoculation of Pleuropneumonia by an African tribe. It is published in the *Annales de Medecine Veterinaire* of May, 1885. It appears that in 1880 the distinguished anthropologist and statician, Auatrefages, communicated to the Belgian Academy of Sciences the existence of a peculiar race of oxen in Senegambia, discovered by Dr. A. J. de Rochebrunne. This race, whose characters are fixed, is marked by a *third horn*, identical in its nature and mode of develop-

ment with the frontal horns, but seated on the nasal region, where the bony elements, undergoing a sort of 'functional osteoporosis,' furnish a true core for it.

"Now, it appears that since time immemorial, the Moors and other races of Senegambia have practised preventive inoculation by plunging a knife or other instrument into the lungs of an animal, dead of epizootic Pneumonia, and then 'vaccinating' the herd on the nasal region. The development of the third horn at the spot of inoculation was supposed by Colin to be due in part at least to the local stimulation thus produced, but this theory is disregarded by the editors of the above-named journal. The latter conclude by saying: 'The origin of the *bos tricerus* will, without doubt, remain an enigma for a long time to come. But whatever it may turn out, the study of this race has made us acquainted with a process of preventive inoculation which indeed need not surprise us as being practised by a people who, from an equally distant period, have been in the habit of inoculating healthy persons with the virus of those afflicted with small-pox.'

Fleming also calls attention to the favourable results of inoculation in various countries—as Belgium, Holland, Northern Italy, the Southern Tyrol, North Germany, France, South Africa, and the United States—and mentions such authorities as Reynal, Haubner, Ulrich, and other eminent veterinary surgeons, as entertaining a high opinion of its utility.

In an editorial article in the VETERINARY JOURNAL for April, 1877, Mr. Fleming says—"The evidence in favour of protective inoculation for this disease is now, it may be said, overwhelming. In every part of the world where it has been tried its value appears to have been amply demonstrated, often even when the operation has been rudely performed by amateurs. The scientific experimental evidence is also most decisive and interesting, and we purpose referring to it at an early opportunity. We have now only to note that, by a decree of February 10, the Dutch Government has authorised the burgomasters to order the compulsory inoculation of all cattle which have become suspected through cohabitation with diseased ones; the operation to be performed by a qualified veterinary surgeon, and the State to defray the cost—fifty centimes for each animal. If the supply of virus fails, the burgomaster may adjourn the inoculations, on the advice of the district veterinary surgeon, until the latter can procure more, which he must do as speedily as possible. If the owner or guardian of the cattle opposes the inoculation, legal measures are to be taken against him. Suspected cattle which, on the information of the veterinary surgeon, cannot be sufficiently isolated at pasture, shall, with all the precautions indicated by the latter, be moved to stables, and there isolated for the period prescribed by the royal decree of October 30, 1872."

In a communication in the VETERINARY JOURNAL for December, 1875, by Mr. H. A. Bradshaw, M.R.C.V.S., Portrush, strong evidence is given in favour of the protective influence of inoculation.

In Australia the matter has been extensively and patiently investigated for some years, one of the most enthusiastic of these investigators being Mr. Graham Mitchell, F.R.C.V.S., of Melbourne. Mr. Mitchell's experience has led him to entertain an opinion highly favourable to inoculation.

I have myself received independent evidence from several sources of its great success in Australia. Mr. A. Grey tells me that during his stay in New South Wales, the protective influence of inoculation was so generally acknowledged as to lead the Executive to prohibit importation of cattle unless good evidence of their having been successfully inoculated could be produced.

It must not, however, be assumed from these remarks that inoculation has no opponents in our Colonies; contrariwise, it has many, and, judging from the communications which have from time to time appeared in colonial newspapers, bitter ones too.

Having mainly referred to the matter from a foreign point of view, we will see what is known of it at home.

About the year 1859, when I was a neophyte in veterinary practice, the subject of inoculation received a large share of public attention ; and in some parts of the Midland Counties the operation was had recourse to very extensively, and was performed in a variety of ways ; one enthusiast, a cow-doctor—who had by some process of reasoning arrived at the conclusion that the liver was the seat of the poison—inoculating with small portions of the livers of affected animals. My preceptor, Mr. B. Keith of Market Drayton, practised inoculation successfully. From some cause the operation at that time fell into disrepute, and was abandoned.

When I commenced my collegiate course, scarcely an animal came into the City of London that did not carry palpable evidence of having been subjected to inoculation ; most of them, indeed, claiming close relationship with the Manx cats. About this time, too, or somewhat earlier, the subject received much attention in Scotland, and some of the most eminent veterinarians practised inoculation extensively. From causes which I cannot explain, but certainly not always from ignorance or carelessness on the part of the operator, the operation was discontinued entirely in Scotland, and to a great extent also in London.

Inoculation has been practised in the Metropolis for the last thirty years by Mr. Priestman, who has probably inoculated more cows than any other member of the profession in any of the English-speaking countries ; and he calculates that the loss arising from P.-p., should it break out in an inoculated stock, is about 6 per cent. Mr. Priestman also finds, as I and others have done, that if the disease is incubating in the system of an animal, inoculation does not arrest its development.

There are those now in the neighbourhood of Edinburgh whose experience of the operation at the time of which I speak has led them to declare recently that they would not again allow it to be performed on their animals on any consideration whatever.

In the Appendix to the Veterinary Report of the Privy Council Office for 1874, an instance is quoted where Pleuro-pneumonia broke out in a stock of dairy cows which had been successfully inoculated by Mr. Priestman.

In the *Veterinarian*, October 1878, the following note occurs :—"The Minister of Agriculture writes from Berlin to the President of the Central Agricultural Society of Saxony, stating that he is continuing his researches and experiments on the value of inoculation in Pleuro-pneumonia, but that he is not as yet sufficiently convinced of its efficacy as a preservative measure, to contemplate the introduction of any law rendering it compulsory."

Recently the matter has been again revived and brought into prominent notice in Edinburgh by the individual exertions and zealous efforts of an old pupil of the Dick Veterinary College, Mr. Richard Rutherford, of Breadstreet. Having had the advantage of an extensive and personal acquaintance with the operation as practised by Mr. Graham Mitchell in Australia, Mr. Rutherford—who long ago expressed to me his determination of bringing it prominently forward at the earliest opportunity—has quietly and perseveringly been experimenting in the dairies of Edinburgh and Leith, and, so far as I can vouch from personal knowledge, with apparently gratifying success.

I have frequently remarked that this is a subject for imperial, not for individual consideration, and I repeat the remark here. A few experiments have been carried out in the Brown Institute in London, by Professor Duguid, under the auspices of the Royal Agricultural Society of England, and, so far as they have gone, the results have been positive in favour of inoculation.

Undoubtedly the operation of inoculation has some drawbacks, but can we find in anything good unmixed with evil?

Mode of performing the operation.—Many methods have been adopted at different times and by different operators. The introduction of the virus under the skin by the aid of a pipette, a grooved needle, or a woollen suppository, incision and scarification of the skin, and bringing the inoculative matter in direct contact with the abraded surface, have each their advocates.

The most scientific and easy method of operating is by the use of the hypodermic (subcutaneous) syringe, and I am much surprised that this method has not been adopted by veterinary surgeons, as its advantages over others are very obvious, and all that is required is a small preliminary incision through the skin, in order to facilitate the introduction of the needle. Next to the subcutaneous introduction of the lymph by the syringe, I most certainly prefer the *woollen suppository* (which is the method practised by Mr. Rutherford), viz., the introduction of one or two strands of ordinary stocking yarn, about two inches in length, underneath the skin; the yarn having been previously saturated in lymph, and introduced by the aid of a curved needle and previous incision with a lancet or rowelling scissors.

It is not necessary to introduce the suppository in the form of a seton, its insertion as a rowel or plug is quite sufficient; and this can be accomplished with great facility by the use of an ordinary pair of dressing scissors, or by my combined neurotome and needle.

In a report issued from the Brown Institute some time ago, Dr. Burdon-Sanderson gives details of fifteen cases of successful intravenous inoculation—two or three drams of lymph being introduced into the posterior aural vein by the aid of a canula attached to a hypodermic syringe, care being taken to avoid introducing the lymph into the surrounding connective tissue.

If the seton is used it may be moved backwards and forwards, once either way, in about twelve hours after introduction, and wholly removed in twenty-four. The moving of the suppository ensures the lymph coming in contact with an absorbing surface and allows of the escape of any fluid which may be thrown out by the irritated vessels. If the yarn is left in for too long a period, it undergoes decomposition, and may originate septicæmia.

Point of introduction of the virus.—Various parts of the body have been chosen by different operators in which to introduce the lymph, the parts usually chosen being those devoid of hair. The most convenient, and the most free from a variety of objections, is the distal extremity of the tail, or rather about two or three inches therefrom, and for the purpose of future observation the hair should be previously removed close to the skin, for a distance of three or four inches.

The material for Inoculation.—Great care must be exercised in the choice of this. The following particulars should be strictly observed:—

1stly. The lymph should be taken from the lungs of a healthy animal—*i.e.*, from one free from any other disease, particularly tubercle or cancer.

2ndly. And, if possible, when the disease is in its very earliest stage.

3rdly. It must not be taken from the actually diseased part of lung, but from the surrounding healthy parts, in which there is always more or less lymph which has infiltrated from the adjacent affected portions. Neither must it be taken from the effusions in the cavity of the chest or from the bronchial tubes.

4thly. Great care must be exercised in the removal of the lymph from the lung-tissue. This can be done (*a*) by the aid of a pipette, or a subcutaneous syringe, from the interlobular tissue; (*b*) by inserting small canulæ or grooved needles or teat syphons in the interlobular tissue, and allowing it to drain out into porcelain or glass vessels; (*c*) by puncturing the interlobular tissue with a lancet, and applying gentle pressure; (*d*) by cutting the lung into

sections, and placing the sections on any ordinary drainer. Whatever method is adopted, the introduction of extraneous matter must be avoided, and every instrument or vessel used must be scrupulously clean.

5thly. The collection of the fluid should be accomplished in as pure an atmosphere as possible, and where the fluid is not wanted for immediate use it should be preserved—(I have successfully inoculated with lymph preserved with one part of glycerine to three of lymph for fifteen months, or nearly two years, and I have succeeded with preserved where fresh lymph has failed)—in stoppered bottles, or corked bottles effectually sealed. A small quantity (two per cent.) of common salt may be added to the lymph with the view of more effectually preserving it, without interfering with its activity. It may be collected in capillary tubes in the same way as in the collection of vaccine matter.

6thly. The lymph should be collected as soon after death as practicable. If it were possible to obtain sufficient lymph for the purpose, reinoculation, with the exudation from the tail, would be preferable, and quite as successful. Scientifically, the use of cultivated virus is indicated, but the trouble and time of carrying on cultivation to a sufficient extent is scarcely called for, seeing that we can minimise, as we now do, the percentage of mortality; one good result might however accrue, viz., the absolute preservation of the tail—a matter of great importance to cattle in hot weather.

In the choice of animals for inoculation, and their treatment during the period of inoculation, some care is also required.

It were manifestly unwise to inoculate an animal whose appearance betokened the existence of any chronic disease, such as tubercle, and if evidence exists (though it must be borne in mind that the source from which this evidence comes—viz., the owner—is not always trustworthy, as whenever Pleuro-pneumonia exists in a byre and an animal shows any symptom of illness—even though it is only indigestion—the conclusion is at once arrived at that it is suffering from P.-p.) that an animal has been the subject of P.-p. inoculation is useless, as, if it were true that one attack gave immunity from others, the natural disease *must* be more protective than a localised artificial one.

Some operators—Mr. Rutherford amongst them—will not operate under these circumstances; neither will some inoculate if the animal is already the subject of disease, while others assert that the operation has a curative effect.

During the period of inoculation strict attention should be paid to hygiene, the tails kept as clean as possible, and in hot weather the byres should be kept cool, and the animals protected from the attack of flies, as they cannot, if the inoculation is successful, protect themselves, owing to the great soreness of the tail. The inoculation of recently calved cows (as has been often proved in Mr. Rutherford's experience, and as I have had opportunities of seeing myself in one or two animals upon which that gentleman has operated) is injudicious, as the system is in an unhealthy state, and consequently untoward results are liable to follow. A fortnight is about the time allowed by Mr. Rutherford to elapse after calving before inoculating.

If the weather is favourable and not too hot, no harm can accrue from allowing the animals to go out to grass, particularly during the day; but exposure to inclement weather must be avoided.

General and local effects of inoculation.—The systemic effects are not always well marked, but in some cases a certain degree of fever—the thermometer indicating about 103° Fahr.—is observed; there may be, so far as my observation and inquiries are concerned, a little falling off in the quantity of milk in the case of milch cows, and, occasionally, a little interference with the appetite simultaneously with the elevation of the temperature, and also

slight excitement of the circulation, as indicated by quickened pulse. I am here assuming that the inoculation is successful, and its course regular. The general effects are developed with the advent of the local symptoms.

The local effects are as follows :—In a period varying on an average from six to ten days, the inoculated part becomes swollen, hot, and tender, and the hair erect ; the incision may gape or discharge a serous or sero-purulent fluid, and when the inoculation is quite successful a straw or amber-coloured serosity oozes from the dermis, and collects in the form of more or less distinct but small vesicles ; in some cases no vesicles are formed, the serum simply oozing out and flowing evenly over the surface of the skin ; if vesicles are formed, they burst and discharge their contents in the course of a day or two ; in either case the fluid becomes inspissated from exposure to the atmosphere, and forms, with the epidermis and hair, an adherent scurfy or scabby mass, which in the process of time falls off leaving the skin more or less roughened, wrinkled, and hardened, and the hair somewhat erect.

The whole process, from the day of inoculation to the period of desiccation, occupies from four to six weeks.

If no local effects are produced within twenty-one days or thereabouts, the advisability of reinoculation may be considered.

(To be continued.)

Obituary.

THE deaths are reported of Alexander Bain, Liverpool, who graduated April, 1877 ; Richard Hudson, Clarbrough, who graduated January, 1843 ; Charles Parnell, Oakham, who graduated April, 1858 ; and Frederick Chamberlain, Bawtry, Yorks.

We are also sorry to announce the sudden death of Mr. H. A. Towlson, who graduated in 1880. and died at Uttoxeter on October 19th, at the early age of thirty years. The deceased was a very promising young member of the profession, and was highly respected by all who knew him.

By the death of M. Magne, France has lost the oldest member of the veterinary teaching body. For many years director of the Alfort Veterinary School, he had been for some time on the retired list when, on the 27th of August, he died, at the advanced age of eighty-two years. Distinguished as a teacher, a member of the Académie of Medicine, Société Nationale d'Agriculture de France, and many other learned societies, M. Magne has long been known by his many valuable writings. Among the works due to his prolific pen we may mention "La Nouvelle Flore Française," and the "Traité d'Agriculture Pratique et d'Hygiène Vétérinaire Générale."

Army Veterinary Department.

LIEUT.-GENERAL SIR FRED. ROBERTS, Commander-in-Chief of the Madras Army, in his valedictory General Order of the 17th August, issued on assuming command of the Forces in India, says : "The Medical, Commissariat, Transport, and Veterinary Departments have earned my cordial acknowledgments by the careful discharge of their own particular duties."

Major-General Sir Charles Warren, commanding the troops in Bechuana-land, in his final despatch on the termination of operations in that country,

writes : "Inspecting Veterinary Surgeon Duck and the officers of his Department, have carried out their work to my entire satisfaction."

Fred Smith is undergoing a course of study in Practical Hygiene, at the Royal Victoria Military Hospital, Netley.

Notes and News.

RABIES.—This alarming disease appears to be very prevalent, and in various parts of the country deaths have been reported of people who had been bitten by rabid dogs. Rabies has also broken out among a new pack of hounds at Buntingford, Herts, with which Mr. Swindells, then we master, was about to hunt the Pukeridge country. It is more than strange that no proper steps are taken to eradicate this scourge.

CONTAGIOUS PLEURO-PNEUMONIA IN HOLLAND.—For some months now, Holland has been entirely free from the Lung Plague, thanks to the energetic manner in which slaughter of the diseased and infected, and protective inoculation of other cattle, have been carried out.

THE WATER PLAGUE.—The *Moskauer Deutsche Zeitung* announces that M. Pelommikoff, Professor of Botany at Moscow, has discovered upon the banks of the Oka, in the neighbourhood of that city, a wild aquatic plant of the same kind as that which excited so much attention among the botanists of Western Europe when it made its appearance there half a century ago. This plant, the *Elodea Canadensis*, was first discovered in the rivers of Canada at the beginning of the century. In Germany it is called the Wasserpest, the vegetation of this plant being so rapid that under favourable conditions as to soil and climate it soon forms such a dense tangle of leaves and stems as to make navigation impossible.

THE BUSY BEE.—Few people have any idea of the labour that bees have to expend in the gathering of honey. Here is a calculation which will show how industrious the "busy" bee really is. Let us suppose the insects confine their attention to clover fields. Each head of clover contains about sixty separate flower tubes, in each of which is a portion of sugar not exceeding the five-hundredth part of a grain. Therefore, before one grain of sugar can be got, the bee must insert its proboscis in 500 clover tubes. Now there are 7,000 grains in a pound, so that it follows that 3,500,000 clover tubes must be sucked in order to obtain but one pound of honey.

GANGRENE FROM LEOPARD'S CLAWS.—Speaking of the Ceylon leopard, Baker says : The blow from the paw is immensely powerful, and at one stroke will rip open a bullock like a knife, but the after effects of the wound are still more to be dreaded than the force of the blow. There is a peculiar poison in the claw which is highly dangerous. This is caused by the putrid flesh which they are constantly tearing, and which is apt to cause gangrene by inoculation.—*Eight Years' Wanderings in Ceylon.*

HORNS.—Linnæus observes that the sounder the condition the reindeer is in, the sooner it loses its horns ; that the Laplanders judge of their state of health from this circumstance ; and also that the doe keeps her horns till she brings forth her calf ; but that, if she be barren, she loses them in the winter, thus showing whether she be in calf or not. Erman says of the reindeer amongst the Ostyaks in Siberia : "The renewal of the antlers would seem to depend but little on the influence of

temperature and climate, for it takes place in the same month here as in Germany, notwithstanding the interval of eight-and-thirty days which separates the first appearance of foliage in Central Germany from the corresponding phenomenon in the neighbourhood of Beresov."—*Travels in Siberia*.

THE YAK'S TONGUE.—The wild yak or bison of Central Asia is in Tibet hunted by large dogs. It is horribly fierce, falling upon you with horns and chest; and if he rasps you with his tongue, it is so rough as to scrape the flesh from the bones.—HOOKER, *Himalayan Journals*.

CASTRATION IN CEYLON.—"Bulls are castrated by compressing the testicles between two pieces of wood. Castration is in general not performed until the animal be about three or four years of age. By this operation the texture of the gland appears to be completely destroyed; inflammation and swelling follow the compression. Eventually the substance of the testicles seems to be absorbed. According to report, death rarely follows this rude operation."—MARSHALL, *Notes on the Medical Topography of Ceylon*.

ARSENIC POISONING.—Two horse-keepers in the employ of Mr. Horrell, the well-known breeder of horses, of Thorney, Cambridgeshire, have been arrested on a charge of having administered arsenic to horses in their employer's stable. The poison had been given to the animals in their food, in order to improve their appearance. Nine horses (some of them valued at £100 each) have died, and it was believed that five others would succumb.

SPRATTS PATENT.—We notice that "Spratts Patent," London, were awarded the first prize for dog, poultry, and game appliances at the Dairy Show, Islington. This firm supply a very useful illustrated list of appliances, post free on application.

DEATH OF A HORSE FROM FRIGHT.—A valuable horse, the property of Mr. Lowe, of Runporn, took fright in the High Street, Aldershot, recently, at the sight of a large elephant belonging to a travelling circus. The horse became very excited, bolted a few yards, broke a blood-vessel, and dropped dead on the spot.

Correspondence.

HORSE-SHOEING.

SIR,—At a late meeting of the Central Veterinary Medical Society, a novel shoe was exhibited by Mr. Sheather. The principle of its construction was the union of a tip with a leather sole, and a compound leather and india-rubber cushion at the heels. Among the advantages of the shoe are that it gives the horse a good foothold, and so lessens concussion that the natural elasticity of the pasterns and fetlocks is allowed free play. Horses shod for a few months with these shoes have been found to travel with greatly improved action, others have recovered soundness, and bent-kneed horses have regained a straight position of limb.

In answer to questions, Mr. Sheather said "the first cost of the shoe would be greater than ordinary shoes and pads, but that the difference would be considerably lessened by taking into account the long time the shoe is found to wear. In many cases, after a month's wear it was only necessary to renew the iron tip. Above all points, in estimating the relative value of this system of shoeing, was to be reckoned the great saving of horse-flesh; it was in the legs that horses used for hard work in towns first failed, and there was in this method of shoeing the means of preventing that injury to the feet and limbs

which resulted in time from ordinary shoeing." From which I conclude that Mr. Sheather not only recommends the shoe as beneficial for diseased feet, but intends it to replace all other shoes for sound as well as unsound feet.

This shoe, which produces such beneficial results, was not originally intended as a "cure all," as a panacea for all the ills that befall the horses feet and limbs; but its beauties were discovered by *accident*; his "chief expectation was to remedy and prevent corns," this shoe not only answered the purpose, but poor feet were found to improve under its wear.

In the discussion which ensued, Mr. W. Hunting dilates on this point, and was "struck by the fact, that it (Mr. Sheather's article) was written after a *complete* trial of the shoe; *it is, therefore, no hypothetical theory of expected benefits, but a scientific explanation of proved results.*"

Probably I am entertaining an erroneous opinion, and, if I saw this shoe, I would have as favourable an opinion left on my mind as was apparently, left on the minds of Messrs. Hunting, Dudgeon, Broad, and Professor Pritchard; but under the circumstances I hav'nt, nor do I agree with Mr. Hunting that Mr. Sheather's pamphlet is a "*scientific explanation of proved results*"; in fact, I am at variance with the favourable opinion of the society, that it will answer for all sorts of feet—sound and unsound. From the very fact that leather is an absorbent, and rubber a better one, I cannot but conclude that in the long run the shoe will prove injurious.

Shoeing, though a necessary evil, is still an evil. We add iron to a horses hoof as a protection, to prevent the wear and tear which would occur without it; we use iron not because we want to, but because it is the very best thing we know of for that purpose. Almost everything else has been tried and has failed from one cause or another, rubber and leather among them; and it is rather premature, on a few months' trial, to conclude that a combination of two materials, each of which, taken separately has failed, should produce such an overwhelming success, because temporary benefits have accrued therefrom.

Mr. Sheather did not anticipate anything approaching the good results he has obtained; "my chief expectation was to remedy and prevent corns"; and I certainly am curious to know if his chief expectation was realised? It would be a very different matter to prove that a certain shoe prevented corns, and, if by remedying is meant curing, I have always considered it an impossibility. I myself find no difficulty in *relieving* "corn" by shoeing, but relieving and removing the discolouration are two different things. Again, my professor at college always taught me to regard "corn" as a symptom. He scouted the idea of its being caused by a ruptured blood-vessel or that it is due to a bruise, or *always* to bad shoeing, as he had seen horses with "corns" that never wore a shoe.

The mere fact that Mr. Sheather found out the utility of his shoe while experimenting on "corns," is pretty conclusive evidence that said "corny" feet were afflicted with other troubles as well; so that, unknown to himself, he was often treating the causes of "corn," while attempting to remove a symptom.

Dr. Hamili's theory as to the cause of "corn," is that it is due to a disease of the structure from whence the discoloured horn is secreted, and this, in itself, is due to other causes; so that we may consider that where we have "corn" we have always some other trouble. Every smith, every horseman, and everybody else, knows a sure cure for "corn." First, it is cut out, and some powerful material inserted in it; later on the heels are opened and the quarters rasped; the "calk" is shifted; leather is tried on a bar shoe, &c. They all give relief—for a time—but in the long run are decidedly injurious—aye, ruinous.

With such feet Mr. Sheather's shoe cannot but be a success, that is, it is

an improvement on those methods now in use by the smith ; it will have a tendency to replace these measures, because the beauties of his method can be made so very apparent to the owner, and often to the smith, and as the action of a cushion on the heels will, in very many instances, give immediate relief ; its after injurious effects will, doubtless, be laid to some other cause. It is a means of relief *less injurious* than many practices now in use, all of which practices would be better done away with. As to being equal to *proper* shoeing, I cannot believe it ; as to ever replacing *ordinary* shoeing, it will depend on what ordinary shoeing is. In Providence, ordinary shoeing might be replaced by almost anything with benefit. At present scientific shoeing replaces it. But if by ordinary shoeing it meant proper or correct shoeing, as it is understood to-day, I can only assert my belief, not only that it never will replace it, but that it will prove a failure, unless its use is restricted to a therapeutical measure. In this sense alone it will be sufficiently abused.

As a therapeutical measure I can see its benefits. The tip will admit of expansion, and the pad, by acting as a cushion to the heels, will give the animal confidence—by relieving the pain which his own weight formerly induced—to stand full and firm, thus giving, as is claimed by Mr. Sheather, a good play on the tendons, the functions of the frog and the circulation are restored, and if it were not for the absorbent action of the leather and rubber pad and sole, we would have an excellent shoe ; which, if it would not be all that is claimed for it by Mr. Sheather, still would be an excellent thing, and an easy remedy for many of the ills that horse-flesh unnecessarily is obliged to suffer. The only advantage of this shoe, however, over an ordinary tip, is the cushion. What substance is there which will answer the purpose of a cushion that is not injurious to the horse's feet ? What will Mr. Sheather's shoe do that correct shoeing will not do, if not so quickly, at least more permanently ?

It may seem unjust, or even absurd, for me to criticise a shoe I have never seen ; but it is not so much the shoe as the principle of absorption I recommend as a "saving of horseflesh." Yet, I ask the question in all honesty, is there anything new in it ? Is there anything in it which should hold spell-bound an entire body of scientific men ? Is there anything of value in the principle which has not been admitted long ago ? Is there anything in it which has not proved a failure long ago ? Had I found the shoe advanced in a sporting paper I should have passed it over without a second thought, concluding it was an advertisement of some old company, formed with a renewed capital, to make some old idea popular ; but when I see it brought before a veterinary meeting among English veterinarians, to whom we on this side of the Atlantic look up to, and from whom we expect so much, it is but natural we should expect, at least, some scientific discussion on the subject. It is unnecessary to say we were disappointed. There seemed to be a general acceptance of its *scientific* value, because it had power of benefit in a few cases. "The Fellows present were thoroughly impressed with the practical merits of the shoe, and recognised its usefulness. A remark by Mr. Broad which, taken by itself, the writer is in perfect accord with, but as the finate to a discussion which implies—without one demurring word—that the shoe is a "sure cure" for most troubles in the feet and limbs, and a preventive of all, and that it will soon supersede all other methods of shoeing, I am not in accord ; nor do I agree with the apparent opinion, acquiesced in by silence, of the Central Veterinary Medical Society, that we have reached a new era in the science of shoeing, and that the acme of perfection has been arrived at in Mr. Sheather's Patent Shoe.

Providence, U.S.A.

JOHN A. McLAUGHLIN, D.V.S.

August 25, 1885.

MRS. BOWLES' FUND.—FURTHER CONTRIBUTIONS.

	£	s.	d
Amount received up to September 14th, 1885	25	7	6
Mr. A. McCallum, Edinburgh	1	1	0
„ Thomas Gregory, Tunbridge	2	2	0
„ Charles Hunting	0	15	0
„ A. Prudarne	1	0	0
„ Owen Thomas	0	10	0
„ John Fryer	1	0	0
„ Benjamin Cartledge	1	1	0
„ E. H. Elder	0	10	6
„ Thomas Foreman	0	10	0
„ A. H. Santy	1	1	0
Professor Williams	1	1	0
Mrs. Robert Ockleston, Daughter of the late John Greaves, V.S.	2	0	0
Dr. Fleming, P.V.S.	1	1	0
	<hr/> £39 0 0 <hr/>		

Oct. 16th, 1885.

THOMAS GREAVES.

TO CORRESPONDENTS.

X.Y.Z.—The only work which refers to any extent to Veterinary Dietetics is Fitzwygram's "Horses and Stables."

Several communications and reports are held over until next month.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from J. Gresty, Newcastle-on-Tyne; D. C. Pallin, A.V.D., Dublin; F. C. Mahon, Southsea; J. Brodie Gresswell, Louth; A. J. Haslam, A.V.D., Egypt; T. Bonhill, Kirkcudbright; J. McLaughlin, Providence, U.S.A.; R. H. Dyer, Limerick; G. Howe, Ashbourne; A. W. Hill, London; J. Matthews, A.V.D., London; J. Brodie, Honolulu; X. Y. Z.; C. P. Lyman, Boston, U.S.A.; H. Tweedley, Glasgow; Messrs. Spratt, London. B. Cartledge, Sheffield; E. Hodgkinson, Uttoxeter.

BOOKS AND PAMPHLETS: Arbeiten aus dem Kaiserlichen Gesundheitsamte (Erster Band); *A. Zundel*, Der Gesundheitszustand der Hausthiere in Elsass-Lothringen; *E. Lavalard*, Rapports sur les Opérations du service de la Cavalerie et des Fourrages pendant l'Exercice, 1884; *R. Zappa*, Manuale pei Maniscalchi; *D. Viguzzi*, Nevrotomia, Nevrectomia, Nevrectenia; *A. Degive*, Die Lungenseuche.

JOURNALS, ETC.: *Revista Balear di Medicina, Farmacia y Veterinaria*; *Journal of Microscopy and Natural Science*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Revista Popular de la Exposicion Rural*; *Der Hufschmied*; *Recueil de Médecine Vétérinaire*; *Animal World*; *Chicago Live Stock Journal*; *Clinica Veterinaria*; *British Medical Journal*; *American Veterinary Review*; *Revue Vétérinaire*; *L'Echo Vétérinaire*; *Annales de Médecine Vétérinaire*; *Journal de Médecine Vétérinaire*; *Live Stock Journal*; *Lancet*; *Medical Press and Circular*; *Farmer*; *Edinburgh Medical Journal*; *Journal of Anatomy and Physiology*.

NEWSPAPERS: *Albany Argus*; *Leeds Mercury*; *Yorkshire Post*; *Bradford Observer*; *Times of India*; *World*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

DECEMBER, 1885.

NOTES OF A CASE OF CEREBRAL TUMOUR.

BY, J. MATTHEWS, F.R.C.V.S., ROYAL HORSE GUARDS.

A BLACK MARE, No. 11, H. Troop, 15 years old, 11 years' service, was reported at morning stables on the 19th inst. for extreme drowsiness, except when roused at the hours of feeding, but quickly relapsing into a lethargic condition. Admitted into infirmary.

Previous history of the mare showed she was of a quiet temperament and occasionally stupid, walking over stable utensils and against the pillar-posts as if unconscious of their existence; this was not reported, as it was attributed to the carelessness of the attendant.

Leading symptoms were those of exalted functionary activity, evinced by partial and general convulsions, followed by diminution of sensation.

Detailed symptoms (Sept. 19).—Pulse 25, vessel large and soft. Pupillary openings widely dilated, with paralysis of both optic nerves, indicated by inability to see wall or rack, against which it walked; also complete indifference to light. Soon after admission, the patient was seized with convulsions, striking the right side of the head violently against the wall, if standing, or against the ground if prostrate, permanently closing the eye on that side; the pulse rapidly rose, falling after the struggles ceased. As the disease advanced the convulsions took the form of slow galloping action. The breathing was slightly stertorous

throughout ; during the quiescent intervals, the animal stood with its nose protruded and firmly pressed against the wall. The box was carefully padded with trusses of straw, abundant cold douches to the head were had recourse to, and a purgative drench administered.

Diagnosis.—Tumour in the brain.

20th.—Little change in symptoms, except an increase in the severity and frequency of the convulsions. Pulse variable, at one time as low as 18. Respiration a little quieter, except when struggling. Bowels acting freely, though no actual purgation has resulted from medicine. The greatest relief, though of a temporary nature, followed the use of the cold douche ; it invariably lessened the violence. From the persistence with which the patient strikes the right side of her head, I think the seat of tumour is on the left.

21st.—Convulsions continue. Pulse 34. Repeat douche.

22nd.—Pulse 18, rising rapidly to 58 or 60 beats a minute during the exacerbation. Refusing food for the first time since admission.

23rd. Died.—*Post-mortem examination* showed a small pediculated and lobulated tumour on choroid plexus of right lateral ventricle, and a smaller one of a similar nature on choroid plexus of left lateral ventricle ; whilst, growing from the velum interpositum, was a tumour about the size of a hen's egg, which had caused absorption to a corresponding extent of the posterior portion of left hemisphere of cerebrum. Both lateral ventricles were engorged with straw-coloured serous fluid, probably from three to four ounces in quantity. A section of the large tumour showed it to be solid, and closely resembling the structure of liver in colour and density.

Microscopical examination showed the tumours to be sarcomatous, containing spindle-shaped and round cells.

“AZOTURIA” IN HORSES.

BY K. WINSLOW, B.A.S., STUDENT AT THE SCHOOL OF
VETERINARY MEDICINE OF HARVARD UNIVERSITY, BOSTON,
U.S.A.*

THE subject of my paper this evening is “Azoturia.” You may think it a rather hopeless task, on account of what I may call the foggy condition of the pathology of this disease; but if no new matter can be added, it is at least to be hoped that a *resumé* of that already known may put the subject on a better basis for further study. It might be well to state at the beginning that the name Azoturia is an objectionable one in this connection; for as the name only indicates a symptom, that symptom should be a constant and important one, which I believe it is not. The name Azoturia, from azote or nitrogen, strictly implies a super-nitrogenized condition of the urine. As albumen is present in the urine, that would increase the nitrogen to some extent; but Azoturia has always been applied in human medicine to an increase of urea in the urine, and this is not present often enough in this disease to warrant the name of Azoturia. Another reason for changing the name of this affection, is the fact that Azoturia in man is an entirely different disease.

The name was originally applied by Dr. Willis to a condition where there was frequent micturition, a relative and absolute increase of urea without fever, emaciation, thirst, or unusual appetite. But this condition, with no corresponding increase of the food ingested or loss of weight, would be impossible, according to the accepted doctrines of physiology. Dr. Roberts, however, in his book on urinary and renal diseases, mentions several cases where a large increase of urea was observed in the urine for long periods—seventy to eighty grams, daily, with, however, considerable loss of weight. These he classes under the head of Azoturia. There are no other special symptoms in man. It appears to arise from nervous troubles and mental anxiety, and is sometimes associated with diabetes mellitus. As Azoturia in horses cannot as yet be classified pathologically, the name Hæmoglobinuria would perhaps be the best term, both on

* Read before a meeting of the Boston Veterinary Medical Society.

account of its resemblance to that disease in man, and because it expresses exactly and scientifically what I think is an invariable symptom.

Owing to the resemblance which seems to me to exist between Azoturia in horses and Hæmoglobinuria in man, it may, perhaps, be of interest to compare the two affections; and if such resemblance does exist, it may tend towards a better understanding of the pathology of this disease.

To begin with the etiology in man, the principle cause seems to be exposure to cold. A case is related of a man who could bring on an attack by sitting with his feet in a basin of cold water. In man it does not occur in summer, but usually in paroxysms at intervals, though not invariably so, and is not fatal.

In horses, Azoturia seems usually to be preceded by a period of rest, and comes on suddenly on exercising. Here, also, the disease does not occur in summer, though sometimes in autumn, and more commonly in late winter and early spring. Professor Robertson says it is seen especially in lymphatic farm horses, fed on albuminous fodder, if kept at rest for a few days; going to work, the disease develops from the overloading of the system with nitrogenous products. In the horse Azoturia does not commonly recur, although the same animal may have a second attack during his life. The disease very often proves fatal. The symptoms of Hæmoglobinuria in man are pain in the back and loins, coldness and rigours, and passage of chocolate-coloured urine. In Azoturia of the horse, as you well know, the principle symptoms are sweating, cramps, and trembling of the gluteal and crural triceps muscles, knuckling down and partial paralysis behind, and the passage of dark port wine or chocolate-coloured urine. There is probably a great deal of pain present in the horse, as in man, as shown by the sweating. The trembling may indicate cold, combined with nervous symptoms. There are, of course, other minor symptoms in both man and horse, but it is not essential to mention them here.

Considerable misapprehension of the nature of the urine, in this disease, seems apparent in most of the text-books. In the first place, Professor Williams states that there is a marked increase

of urea, due to increased oxidation of tissue. Also that there is rarely albumen present, but if present, it indicates a severe form of the disease. The specific gravity he says, is very high—1185 or higher—and on trying the nitric acid test for albumen, he gets a heavy precipitate of crystals of nitrate of urea. He also says that there is no blood present in the urine, and no indications of decomposed blood, but that the colour is due to urea.

Professor Robertson goes still farther than Professor Williams ; he says there is no blood in any shape or form, and no albumen, and that the colour is due to urea and its salts. His reason for the absence of albumen, is that he gets no precipitate on heating the urine. I will not say that one might as well look for a precipitate of ice on heating an alkaline urine, as to expect a precipitate of albumen ; but it does seem probable that one would rarely get a test in that way, unless large quantities of albumen were present.

It is hard to make out crystals of nitrate of urea, or anything else, in the urine, generally on account of its dark colour, especially after precipitating the colouring matters in the nitric acid test. Albumen can, however, be precipitated by acetic acid and heat, and so separated by filtering, and accurately determined. A quantitative test can then be made for urea, with no risk of confounding it with albumen. Only in one case has albumen been determined quantitatively, and in that I found one per cent.

Our analyses seem to show that the specific gravity is not essentially very much altered from normal, and is, perhaps, more constant than in health. Four apparently healthy mares were catheterised and the specific gravities were as follows:—1011, 1035, 1044 and 1050. In five cases of Azoturia the specific gravities were 1034, 1032, 1032, 1030 and 1045.

It might be well to state here that the average amount of urea in the urine of the horse, set down as normal, cannot as yet be relied upon, owing to the few analyses ; but the average of those specimens I have examined has been taken ; and please bear this in mind, that the average quantity of urea in normal urine is from two to three per cent. In man the average is about two and a half per cent.

Four specimens of Azoturia urine which were examined quantitatively for urea, contained respectively 4, 31·2, 4, and 2 per cent. of urea. Although in some cases the urea is slightly increased, yet this is not at all constant. Blood pigment has been found in all cases, and microscopic examination has revealed crystals of hæmatin, obtained by the sodic tungstate process. In the sediment have been found hyaline, brown, granular, blood and mucus casts, with crystals of calcic oxalate and hippuric acid. Professor Robertson states that granular and epithelial matter is rarely present, and not at all characteristic of this disease; but this is contrary to our observations.

To sum up, albumen is present generally, if not in all cases; urea may or may not be increased, but its increase does not seem to affect the severity of the attack, as would seem in accordance with Professor Williams' theory that the disease is caused by an excess of urea in the blood, and so in the urine. The urine seems to be almost identical in the Hæmoglobinuria of man and Azoturia of horses. In both the urea is normal or increased, in both the same kind of sediment is present, and in both there is blood pigment but no corpuscles, and it is from the urine that the comparison has chiefly been made.

The termination in man, as has been stated, is favourable, the attack occurring at intervals, the urine becoming normal between the attacks. In the horse, however, the case generally progresses from bad to worse, and the patient dies in convulsions and unconsciousness. In man there seems to be an anæmic condition while the disease lasts, due to the decomposition of blood.

As cases terminate favourably in man, there are no *post-mortems*; and in the horse there are no constant lesions, although *post-mortem* appearances are mentioned in most of the text-books. I believe the blood will be always found very dark and fluid, and in an advanced state of decomposition, and the body has the aspect of death from some septic poisoning. This may have some bearing on the pathology, to which we now come. Professor Williams considers Azoturia a hypernitrogenized condition of the blood, due to over-feeding and lack of exercise. He believes that the supposed large increase of urea is a physiological result of the foregoing circumstances. Dr. Robertson

believes that Azoturia resembles, and may be in part due to, uræmic poisoning, as in that we have stertorous breathing and coma. He also states that neither suppression of urine or urea is necessary for uræmic poisoning. Dr. Rogers, in one of the veterinary journals of last winter, gives us an explanation, a sort of modification of Professor Robertson's ideas. He says he believes it to be a sort of uræmic poisoning, but in ordinary uræmia the kidneys are not doing their proper work; there is such a large quantity of effete matter produced that suitable elimination becomes impossible, and uræmic poisoning results.

It seems very strange that such a serious and extensive systemic derangement should come merely from good feeding and a short rest; yet this seems to be the idea embodied in Professor Williams' theory.

If according to his idea, urea is a measure of the decomposition of the blood, and so is proportionately increased in the urine; then a large increase in the urine ought to indicate a serious form of the disease. But in one of the cases where most urea was found in the urine, the symptoms were very slight, and the contrary in a case which contained less than the normal amount of urea; the symptoms were very severe and death soon took place.

Again, according to Professor Robertson's theory of uræmic poisoning, where there was least urea in the urine there ought to be most blood poisoning. In two cases, however, where a great deal of urea was present, comparatively speaking, death ensued in a few hours. The amount of urea, then, does not seem to indicate anything, as far as diagnosis goes, nor to have any connection, as far as we can see now, with the course and termination of the disease. The symptoms, moreover, do not point at all to uræmia, but are more of a nervous nature. Professor Williams also thinks the resulting increase of urea, and the condition of the urine, is merely a physiological result of effete matters in the blood. But the decomposition of blood and presence of blood pigment, albumen and renal casts, would not usually be called physiological. As far as the arguments here based on the chemical examination of the urine are concerned, it may justly be urged that we have not enough experience to justify any conclusions.

The writer merely offers suggestions. For want of better explanation, we fall back upon the analogy of Hæmoglobinuria in man. In this affection decomposition of blood takes place within the vessels. This same decomposition also occurs in poisoning by arsenic, by phosphorous, in inhalation of carbonic dioxide and arseniuretted hydrogen gas, as well as in many septic diseases. This may indicate a septic origin for Azoturia, and the condition of the horse in which it generally takes places may predispose to the attack, by offering favourable conditions for the growth of a septic germ.

A case of a great deal of interest in this connection, is one related to us by Professor Lyman, in which a case of Azoturia was preceded by Purpura hæmorrhagica. In this instance one seemed to merge into the other, without any apparent cause. But of course a single case, such as this, might be a mere coincidence. If Azoturia is related to Hæmoglobinuria, as has been the object of this paper to show, septic influences seem to favour the disease. In patients subject to malaria, the disease is frequently seen. The kidneys are very probably affected more than would appear from Professors Williams' and Robertson's statements. The presence of casts indicates disordered functions, and may indicate congestion of the kidneys, as seen in ordinary, acute, or passive hyperæmia. The general dark colour of the blood throughout the body, and the almost instant decomposition after death point, however, to its being essentially a systemic disease. In elimination of most septic poisons the kidneys are irritated, and this may explain their condition in this disorder.

Professor Williams has observed, that where most albumen is found in the urine, the case is most apt to terminate favourably. We think this is easily explained, as the albumen results from the decomposition of blood, and may also in part be due to the apparently diseased condition of the kidneys.

But after all, the main question is, to what is the disease chiefly due? May it not be due to a septic poison generated in the general disorganisation of the blood? But in that case, what is the cause of this disorganisation? This cannot as yet be answered, unless by suggesting a specific germ, and this is of course entirely hypothetical at present.

That the disordered condition of the urine is always present naturally follows, it being the principal diagnostic symptom. As this pathological state of the urine is due probably to the elimination of the irritant poison, whatever it is, all the poison is thrown off in this manner in slight cases, and recovery ensues without any serious systemic derangement.

The treatment, in order to be satisfactory, ought to proceed from a good understanding of the pathology, which we do not possess.

If we admit septic causes, then alteratives and antiseptics ought to be resorted to. In this connection, quinine has been most successful in combating this disease in man. Those who believe in Professor Williams' theory should employ cathartics, diuretics, and diluents. To relieve the nervous symptoms, sedatives; and if there is much pain and depression, anodynes and stimulants should be used.

In man, warmth, stimulants, anodynes and quinine have been the most successful remedial agents, and there seems to be no reason why they should not apply as well in the case of the horse: and, indeed, this treatment has proved satisfactory in practice, with the exception of the quinine, which has not, to my knowledge, been used.

“AZOTURIA,” MORE ESPECIALLY WITH REFERENCE TO ITS NOMENCLATURE AND PATHOLOGY.

BY RICHARD W. BURKE, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, CAWNPORE, INDIA.

Synonyms.—Hæmoglobinuria (Bollinger), Hysteria (Haycock), Azotæmia, Acute Uræmia (Walley), Neurasthenia Acuta, or Acute Nerve-Tire (Burke).

Various theories have been advanced to explain the pathology of this affection, and opinions still appear divided among the various observers. The most favourite are, renal inadequacy and liver derangement; but the explanations given by the supporters of either theory appear to be a little conflicting. Their con-

tention, if we understand their position aright, is that in this disease, there is an imperfect conversion of albuminous substances due to functional disorder of the liver, or to excessive supply of albumin, or to both these factors, which leads to an excess of urates in the blood, defective elimination by the kidneys, and an increase in the quantity of uric acid and urates in the blood. The admission that pre-existing defective capacity of the kidneys or disease of the liver will promote the development and accelerate the symptoms of Azoturia, becomes an unavoidable corollary.

But the almost complete exclusion of what follows in the course of the above changes, in the promotion and distribution of the morbid phenomena, introduces difficulties which to me appear to have been hitherto left unexplained, and which may be called the alpha and omega of this whole process. The central fact remains, therefore, very nearly where it always was; since the main points unfolded by the above theories, and examined and re-examined by successive writers, have made little progress in comprehending what solutions of the problem are justifiable and true. Consequently, we receive from writers an elaboration of their own hobbies, or whatever it may please each enquirer to call the result of his own investigation. Such theories, even though they may be universally accepted as a working hypothesis, yet show there is much need for an objection to them.

The whole question at issue here, is as to the mechanism by which the blood and the urine become impure or altered. Is it by failure of the kidney, or is it a change in the blood, either primary in that tissue, or secondary to some nervous influence? The opinion I have formed is that Azoturia results from over-fatigue of the nervous system, and the blood and urinary changes are due to altered nervous functions.

There are ample reasons for thinking that changes in the nerve centres determine the locality of each symptom in Azoturia, while changes in the relation of the blood, liver, and kidneys, determine its effects. We may adopt for ourselves, then, the *Neurotic theory*; since disturbances in the nervous system, in some form and part, may be regarded as a factor in every case of Azoturia.

Dr. Laycock's "Lectures on Diseases of Organs and Tissues as influenced by the Nervous System" bear directly upon this subject of Azoturia, and I would recommend their perusal in this connection.

We know how functional derangement produces certain definite conditions of temperament, or rather we are as sure as of anything that "certain constitutions are prone to functional derangements of certain glandular organs, both secretive and eliminative, which alter the actual constituent normal condition of the blood," which is made manifest either in an objective or subjective manner; and there can be no doubt, that cause and effect, and effect and cause, both work together in the production of that unstable and irritable state of the nerve centres, which tends to a pathological condition known as "Azoturia" in the horse.

From an analysis of all the symptoms noticed in this disease, I am perfectly sure we can find an explanation for the majority, if not all of them, which is especially marked out as nervous or neurotic.

With reference to the term Acute Uræmia, which implies that the blood is the starting point of the disease, it is known that numerous experiments performed on dogs and rabbits have proved that the subcutaneous injection of varying quantities of urea is followed by no one symptom, or symptoms, belonging to the disease which has been named by veterinarians *Azoturia*; while the experiments of Grèhaut and Quinquad have proved that similar injections of urea, equal to one hundredth of the weight of the body, are always followed by death, without producing any symptoms of uræmia in the above animals. The presence of a large quantity of urea in the blood of animals does not seem to exert any injurious influence in producing the symptoms of this disease.

The presence of urates in the urine is secondary, a result of organic changes due to altered innervation; whilst albumin in the urine is not always present, and may be frequently produced, not only in the urine, but in the saliva and some other secretions and excretions, by the injection of various therapeutic agents. Semmola*, Vulpian, Dessales and others

* Annali Univ. di Medicina, Feb., 1885.

have shown that after hypodermic injections of pilocarpine, for example, the saliva, bile, and other secretions become richer in albuminoid substances coagulable by nitric acid, though none was to be found before the injections. In Nephritis, in Paralysis agitans, and other nervous disorders, albumin* has been traced more or less in all the secretions *and* excretions. M. Strauss rendered the urine of animals albuminous by pricking the fourth ventricle, or by injecting glucose under the skin, without the presence of any organic lesions in the kidneys.

The connection of nerve disorders with uterine complaints is well known to the practitioner of human medicine, and this may again explain, perhaps, the relative frequency of Azoturia in mares, as compared with geldings or stallions. It would be a great mistake, however, to conclude that there is any necessary or constant connection between the two; for, although very frequently the nerve disorder has originated in connection with uterine disturbance, in a large proportion of the cases we have seen, it has developed independent of it, as in males.

I have no hesitation in asserting it to be my firm belief that many of the incurable cases of progressive muscular atrophy, (especially noticed in connection with the crural muscles, and occasionally the muscles of the scapular region), paralysis, and many other diseases of the nervous system, commence as Azoturia, and when in this state are quite amenable to treatment. Death is usually the result of some sequela, in severe cases.

What are the usual characteristics of such patients? Can they be described as weak, debilitated, and weedy-looking? Certainly not; and the experience of practitioners of human medicine agrees with our own in an especial manner. For Dr. T. Stretch Dowse† describes such patients as being usually "robust, stout, plethoric, and apparently cheerful." Dr. W. S. Playfair‡ writes, that occasionally such patients are "overburdened with an excess of unhealthy adipose § tissue." At a recent meeting of the balneological section of the Gesellschaft

* Kottmayer and Kathrein's test by mercuric chloride in *Die Fortschritt*, 20 April, 1885.

† Dr. J. S. Dowse, "On Nerve-Prostration," 1880, p. 11.

‡ Dr. W. S. Playfair, "On Nerve-Prostration and Hysteria," 1883, p. 91.

§ *Deutsche Med. Wochenschrift*, 7 May, 1885.

für Heilkunde, held in Berlin this year, Dr. Joseph, of Landeck, read a paper upon this subject, describing the condition of neurasthenic patients as "robust, muscular, and ruddy complexioned."

Among the drugs which have given most relief in cases of Azoturia in the horse, and which have been found reliable in our hands, we find the following, and I enumerate them in the order of their value, namely, chloral, opium and morphia,* belladonna (Walley) and atropine, chloroform, bromide and iodide of potassium, ergot, turpentine, quinine, ether, alcohol and ammonia; and, I would add, local friction (*massage*) and electricity. The reflex influence of mechanical stimuli of the cutaneous nerves on the cerebro-spinal circulation, is of considerable importance.

I am tempted to put forward the above facts, because it is one of the most remarkable instances of the strange and multiform phenomena which neurotic disease may present, which it has ever been the lot of veterinarians to witness. Coincident with nerve disorder is the change in the constitution of the blood, due to changes in the secretory and excretory organs, particularly the liver and kidneys. On the soil so prepared are often developed the graver symptoms, such as paresis or paralysis, disorder of motion, hyperæsthesia, hysterio-epileptic seizures, convulsions, and many others which must be familiar to us all in dealing with such cases. The muscular tremors, the unsteady gait, the loss of balance, etc., so marked in many cases, may be due to the nerve current from the cerebellum, in its descent to the muscles, finding an obstacle in the spinal cord altered by the morbid process. The heart's action is rendered morbidly rapid in some, slow in other cases, by reflex action through the nerve centres from irritation elsewhere, and especially through uterine irritation in mares during œstrum. The profuse perspiration, so characteristic of many cases, is again the result of faulty innervation causing local hyperæmia and increased action of the skin.

In regard to the pathology of this affection, Erb, quoted by Strahan, says: "It seems most natural to refer to fine

* *Journal of Comparative Medicine and Surgery*, April, 1885.

disturbances of nutrition in the cord, such as we are still obliged to assume in so many diseases of the nervous system." Irregular feeding, irregular work, want of proper exercise, reflex intestinal and uterine irritation, etc., all contribute to the production of this affection, not of themselves, but certainly through the nervous system. Death results from inanition, not from any defect in the supply of, but due to a want of power to assimilate, the body-fuel which is supplied, or to what is termed *exhaustion*.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(*Continued from page 326.*)

THE remarks which appear in the last number of this Journal, from the pen of Mr. Pallin, require some slight notice. Doubtless it was a fact that the cases cited by that gentleman were the subjects of enlarged pigment, but nothing has been written in proof of those substances having been the cause of shying. I may with truth assert that fifty times three cases—and more—have been examined by myself, and that the shyers had *not* any pendulous body such as Mr. Pallin describes; and I will go further, and assert that not one case in which I have observed the *corpora nigra* enlarged has the animal been a shy. It is a common practice with me to ask if the horse under examination shys, *i.e.*, if I observe anything about the eye which is likely to interfere with vision—the question is put with a view of gaining information. This is the kind of thing which renders veterinarians so frequently open to ridicule. One veterinary surgeon will reject, in consequence of a certain defect (*as it may be considered*), and another will immediately give a certificate of soundness, which puzzles the public. It is mere matter of opinion whether those pendulous bodies are the cause of shying or not, and I am decidedly of opinion no evidence has been produced to prove it. It is now a question whether the presence of such growths should be considered an unsoundness; for my part, experience teaches that they do not constitute unsoundness, nor should I like to reject an animal with such a growth; at the same time I may state that I am at all times open to conviction.

For further information upon this knotty question I may state

that a gentleman purchased a horse which had these pendulous bodies to a very great extent, and the veterinary surgeon who examined rejected the animal in consequence of having what he called "*so much disease in the eyes.*" The horse was brought to me. I was asked if those black bodies were an unsoundness. My reply was that I did not consider them as such. The horse was purchased, and the owner was a client of mine for many years, until, in fact, I left that district, Waterford. The horse was driven and ridden for several years, and I purchased him as a brake-horse. He was in my possession three or four years, driven by myself, daughter, and servant, and *never was known to shy*. Those appendages were largely developed. His eyes were perfectly normal as to shape, etc. It is a defective organisation in the shape of the globe, to my mind, which causes shying in many instances. It must be borne in mind that the slightest deviation from a perfect form or arrangement of parts in *any* optical instrument, will cause or be productive of some not easily explained inconveniences in vision.

The ears will next be taken notice of, to ascertain if warty excrescences appear upon them. I never heard of an animal being rejected for the presence of warts situated upon the ears, unless they interfered with the putting on a bridle. Poll-evil is a complaint not frequently met with in the present day, and doubtless most practitioners have no cause for regret, as nearly every case I have met with was on a horse the property of a poor man, whose pocket was not encumbered with the means of paying a long score. It is well known that such an affection is tedious to cure. An animal suffering from it at the time of examination, would be rejected as a matter of course. The jugular veins are not now so likely to suffer as formerly, since blood-letting is discontinued ; still, it is advisable in all cases to look at them closely. Should one of these veins be absent or impervious it would be mentioned, and the horse rejected, although the loss of one may not inconvenience the animal, except under peculiar circumstances. It has been customary at this stage of the examination to grasp the throat to cause the animal to cough, but further remarks will be made in other place. For my part I have discontinued the practice for some years.

The withers will next arrest the attention of an examiner. It is not an uncommon occurrence with some practitioners to overlook some minor points, for the reason that all the diseases at this particular part are produced by a misfitting saddle or roller. This seems a sufficient excuse for the seller, and the buyer will, as a general rule, accept the explanation: that is to say, he concludes the purchase. We should, however, remove from ourselves the probability of blame by giving an opinion in a candid manner as to the state of the part, together with the likelihood of its being placed under treatment at some not far-distant date. The muscles of the shoulder will require a little looking at. Occasionally, horses are met with which have ill-developed muscles upon the scapula and adjacent parts. I have seen some horses whose spinal muscles were almost entirely absorbed. The most interesting case I ever witnessed was that of a mare which had been purchased by a gentleman (?) dealer, and brought to the town on her way to London. I had an opportunity of not only seeing the case in its wasted condition, but I saw the operation performed for its cure, and its result. The owner of the mare accosted me thus: "I say, doctor, can you cure this mare?" pointing to the shoulder. My reply was in the negative. "Well," says he, "I can! in five minutes." "Oh!" I replied, "so could I in the manner you refer to; but I don't call that a cure." He inquired what I meant. I made motions with my mouth—as if to blow through a quill. "Ah!" said he, "that's *jest* it." He procured a small knife, a quill, and a needle and thread, set to work, and produced as nice a formed shoulder as could be moulded, and like the one on the opposite side. I inquired how he managed these things, when he informed me that upon arriving in the metropolis he should remove the stitches, and in about forty-eight hours the air would commence to make its escape (after he had disposed of the animal, of course). He declared he never was detected in the trick. I believed that man was as "knowing as a jailer," as the saying is. He used to make frequent visits to London with some of the veriest screws that were to be found. Some of his purchases were blind, broken-winded, roarers, bad-tempered, vicious, kickers in harness—and, in short, many of his horses

possessed everything calculated to constitute a bad bargain. The men who carry on this trade (there are many engaged in it) make it a good thing. They each take from twelve to twenty, or more, from the south of Ireland, at cheap rate, say about 30s. each from this to London. They are packed like sheep in trucks, so that they cannot hurt one another. On their arrival in town they are auctioned off as soon as possible. Now and then some usefully-sound animals are sent across the water, and I believe there is considerable improvement in the class of late.

In directing attention downward from the scapula, we shall learn if anything is amiss at or near the elbow. Pursuing our course towards the carpus we shall have to be somewhat more cautious than we have been, perhaps. During this glance we will, of course, take a peep at the pectoral muscles between the arms, in order to ascertain if a rowel or seton has been inserted there. If all these parts are believed right, we shall now scrutinise rather closely the knee, leg, and foot. It is necessary to be particular in the examination of the carpal joint, especially in hunters, and for this reason: should a blemish be present on the knee, which renders that joint in any way defective or stiff, it will be desirable to dwell a little, and ascertain the extent of injury sustained. This is learned in two or three ways: first, by manipulating the skin in front of the joint; secondly, by moving the skin once or twice upwards and downwards; and, lastly, by flexing the limb, viz., by holding the foot up towards the elbow. If the point of the toe cannot be made to touch the olecranon without force it must be inferred that some derangement has taken place in the carpal or lower joints, and this will require nice manipulation—in some cases—so as to form a correct opinion. Presuming the carpus is the seat of the derangement, we must hesitate for a moment in pronouncing the part sound until we have satisfied ourselves that the horse is capable of undergoing *all* the work he will be called upon to perform. When we take into consideration the circumstances which occur in the hunting-fields, more especially in a *wall or timber country*, it will be at once apparent how necessary it is that an animal should have free use of his knee-joints. It is of less moment in a *bank district*, as the style of jumping is different to that of the

other. We will suppose a case. A horse is brought for examination with a blemished knee ; we find that the toe of the foot cannot be got near the elbow—perhaps not nearer than from four to six inches—unless much force is employed, and we are certain the stiffness is situated in the knee-joint. We have to take into consideration the fact of the horse being a *hunter*, and likely to be put to a high leap, either over stones or a timber fence, no matter which : the rider has no fear of the jump himself, as he has had frequent opportunities of testing the capabilities of his horse over all kinds of fences, *up to a certain height*. He puts him at a four-foot wall, or rail, believing the animal can do it safely (and so he could with the sound limb, but how fares it with the stiff one?). The horse is unable to flex the joint sufficiently—*an inch short is enough*—the result is an ugly *cropper*, which may possibly cause some serious injury to the rider—perhaps, even, break his neck—and all this produced by the defective action of the carpus. I remember a case which occurred many years ago. The late Lord W—— sent for me to examine some horses he had purchased ; one was a hunter with a good character. His lordship said, “I am paying a large sum for this chestnut horse and I hope you will be very particular in your examination.” I observed that the horse was blemished upon the near leg, and also upon the left eye. He said he didn’t mind blemishes if they wouldn’t interfere with the action or usefulness of the animal. Having explained the nature of the blemish upon the cornea, I came to the knee, when I discovered there was considerable stiffness, so much so that the foot could not be raised within six inches—or more—of the elbow-joint. I made a remark to his lordship, which caused him to extol the qualities of the horse, and say he had been told by several of his friends that the horse was highly accomplished. I knew the horse, and had met the owner out with hounds often upon this animal, but had upon no occasion observed him jump any fence besides banks, and what we call in Ireland, “*gaps*.” It is seldom that post-and-rails or masoned-stone walls are met with in the country where this horse hunted. I inquired if his lordship was in the habit of going at a rail or stone-wall. He replied, “Oh yes.” I then said the horse doubtless could negotiate every fence with

safety up to a certain height, but with his heavy weight—he ranked with the welters if the horse was tried at timber or wall—if too high for the stiff knee, he would be likely to come down. In order to make the case plain, I requested he would take hold of the foot and endeavour to touch the elbow with it ; which he at once did, and failed, and looked surprised. “Now,” said I “perhaps you will be kind enough to take the opposite foot and prove what you can do with that.” He did so, and without the slightest effort knocked the foot against the elbow. He became conscious that there was something wrong, and turning round to the head groom, ordered him to place knee-caps upon the horse, and take him back to his owner. I have been rather prosy on this subject, as I feel assured I could date some serious accidents to the cause named. I have not the slightest doubt that many men have had spills over timber and walls, and no suspicion of the animals ridden having defective knee-joints.

(*To be continued.*)

CAMELINE PATHOLOGY.

BY ALFRED J. HASLAM, M.R.C.V.S., A.V.D., SUAKIN.

DURING the Suakin Expedition there was a large camel depot at Suez, situated about four miles from the docks. On the 27th June, 1885, I had spent a busy morning at the docks, and on arriving at the Desert Camel Camp about 1 p.m., saw many camels dead and dying.

Symptoms.—A difficult and painful gait, slowly moving, sometimes “tottering,” shifting slowly of the feet ; lying down, quietly rolling on to side, and occasionally bending back the head, oftener the head seeking the flanks ; an uneasy, helpless look of the eye—to an unprofessional observer an aspect of simple general uneasiness and weakness ; no violence of any kind. Frequent weak and full pulse ; great tympanitis ; laboured breathing ; drawn-up flanks ; gradual exhaustion ; ultimately stoppage of pulsation and respiration, and death in from six to eight hours after their last meal. Fifty-six of the dead ones lay on their left side.

Treatment.—Those slight cases not already dead were treated

successfully by rumenotomy; very gentle exercise; every two hours a pint of warm water as a drench, and feeding on warm bran-mash (I fear the annual grant to the Army Veterinary Department does not allow of Tinct. Opii. for "gommells").

Post-Mortem.—The number of camels that died was sixty-four. Every one of these I examined *post-mortem*, and found the following:—

Diffuse inflammation of alimentary canal from cardiac orifice of stomach to anus; diffuse peritonitis; paralysis of digestion and bowels; stomach full of *unchanged* food and water, with a great quantity of gas, chiefly carbon-dioxide. The examinations commenced in some cases immediately respiration ceased, and in every case were found the above-mentioned lesions. The brain and spinal cord presented nothing unusual. In nearly all cases, but especially in about forty, the heart had undergone semi or total mucoid degeneration (the right side generally, sometimes even the left ventricle was attacked). There was a case of fatty degeneration of the heart, and two cases of rupture of the right auricle.

All but twenty-seven were in poor condition. Some cases that had only been disembarked from ship the day previous, were suffering from Pneumonia, but scarcely sufficient to have caused death at that time.

History and Pathology.—Importance of careful inquiry. For the thorough apprehension of this enzoötic, I must divide the dead camels into two divisions.

Division I.—Numbering twenty-one. Composed of camels that were disembarked the day before (26th June, 1885), along with others, and which were embarked at Suakin on 20th June, 1885, hence six days in a very confined space—not even allowing a natural standing posture—as examination of the ship "hold" proved. These camels are said to have been regularly watered on board ship, but as they only obtained condensed water, they drank very little, and on some days none. These camels were in fairly good condition, but were nevertheless weak, as one can well imagine, after their confinement. They were also suffering from slight Scabies. For the night following their disembarkation, these camels stood near Suez docks, being "first

watered." Next morning they were fed on chopped straw and barley at 7.30 to 9 a.m., and as stated at a board of inquiry, "watered earlier than usual after feeding." In fact, they watered as they passed the trough on their journey to the desert, and as the journey commenced before 10 a.m., they were watered *within* two hours (at the outside) after a "hearty and plentiful breakfast."

The *custom* and *order* for all camels is:—"Feed at 6 to 7 a.m., and water at 4 or 5 p.m., feeding again at 6 p.m.," but as this was the first time camels had been sent to the desert in the forenoon, they were watered "as *usual* at starting," and harm resulted, which on former occasions it did not, because the time of starting was near to "watering" time. The day was hotter than usual, being about 130° F. in the open (but not hotter than certain other days, as proved by the only two thermometer registers kept at Suez, upon which nothing unusual occurred at the camel camp, moreover, it was only three degrees higher than the day before. Likewise it is often 150° F. at Wady Halfa, where no such disaster has occurred). About 12 (noon) a camel fell, dying on the road, and then another, and at 1 p.m. on arrival at the camp these exhausted camels commenced to die after their sudden exertion.

Now all these deaths (twenty-one) occurred in from sixteen to twenty-four hours after disembarkation; they were in an unexercised, weak state; in almost every case the heart had degenerated: they had walked the four miles in the hottest portion of the hot day. Some had Pneumonia. But a great law of health, for the camel as for the horse, had been violated, *i.e.*, drinking to fulness almost immediately after a hearty meal; moreover, after six days of condensed water, and when one would expect them to drink more than usual.

The above then, combined, is the ætiology of Division I., and this opinion is supported by *post-mortem* examination. Death took place more by shock (syncope) and exhaustion than by the inflammatory state; which latter, however, completed the work in those few cases unaccomplished by the former. Little could a heart of jelly perform the extra labour entailed by such hyperamic inflammation and sudden exercise.

Division II.—In number: Forty-three, forming *part* of the desert camp.

Composed thus (fed from 6.30 to 8.30). 26: *Most* of them had arrived at the camp the day before (26th June), and disembarked the day before that (25th June), all suffering from Scabies. The rest were composed of the very weakest and most severely scabied of the camp camels. 12: suffering from severe wounds, Dermatitis, Fever, etc., unexercised. 5: strong camels—very slightly scabied—in *the* one of these “5,” examined before death—the pulse was strong.

This division of forty-three were all more or less scabied, and the group “26” were, as a rule, severely affected.

Now the ignorant “natives” (not Bedouin Arabs) taking care of these camels, feeling the unusual heat of the day, thought to give some camels a “treat,” by watering them in the morning—the “headman” told me *so* himself—and this was actually seen going on by Europeans in the case of the “12” or “sick” group of the Division II. Likewise a “Khamsin” wind commenced to blow in the morning, for which reason, also, the “natives” watered the camels earlier than usual. But, more than all, owing to the “rotten” state of the camel head-collars, and in *many* cases, absence of head-collars altogether (the camels were about to be sold, and no head-collars were supplied), the camels broke loose, and drank to fulness at the “watering-place,” twenty yards distant. In fact, for a time, the camp was confusion—the human beings seeking shelter from the sand-storm, and the camels seeking water.

The “5” group of this Division II. broke loose, and were seen “gorging” themselves at the fresh water canal to which they were nearest, and then to become embedded in the mud, struggling in which only brought on exhaustion the sooner. Likewise many of the “26” group were seen loose, the heat encouraging thirst—the natives being under shelter, and the camels doing as they pleased, and the majority only two days off ship. The rest of group “26” had not been long at the camp, and were the weakest and most severely scabied of all the camels.

Speaking generally of both divisions, the *post-mortem* lesions

were exactly the same, and it is to all circumstances combined, as explained in Division I., that death resulted ; but I am of opinion that had the camels been kept from water until their proper time, and then allowed it in moderation, such a great preventable catastrophe would not have happened, as proved in the case of the rest of the camel camp, and at other times in similar circumstances. Again, no doubt, the unexercised state and morbid hearts assisted materially to bring about death. Yet it is a fact that *ad libitum* watering immediately after a large meal in this climate, will cause Enteritis, Peritonitis, and death in otherwise healthy camels. One person suggested "poisoning" as the evil doer. Another, while I was carefully washing some scratches on my hand, solemnly assured me it was Anthrax—he had seen cattle go off suddenly in India just the same way. I rushed to my microscope to see if I should "go off suddenly," and having found no bacillus anthracis in the blood of intestine or heart, began to think, with the result that I had a good subject for communication. Some persons at the station, men of camel experience, said the camels died of sunstroke!!! and stated their opinion to the Board of Inquiry. *Post-mortem* told the true tale, however.

In conclusion, and bearing slightly on the above, I cannot help stating here, how different camels would be if they were only treated more as we treat horses, instead of like pigs. They are grand animals, they call forth my admiration and sympathy, and in spite of their ungainliness and often sullen behaviour, they make me a willing pleader in their cause. But their patience and endurance of the harsh and cruel treatment they often meet with, excites wonder. As does the fact of their suffering from painful Peritonitis, Enteritis, Pleuritis, Colic, or Pneumonia, without showing the least violence, and even without a groan, demand the further philosophical investigation of temperament and pain.

SPLENIC FEVER.

BY H. LEENEY, M.R.C.V.S., EAST GRINSTEAD, SUSSEX.

THE prevalence of Anthrax in the northern part of Sussex has been, for generations, a great source of loss to stock-owners ;

and the total inability of veterinary practitioners to cope with it has led farmers to regard it as one of the inevitable drawbacks of the soil, and while some adhere to the practice of setoning and bleeding, or physicking, all are agreed that treatment is of no avail when once cattle are "struck." That form of Anthrax which is most frequently met with on reclaimed forest land is what is known in the district as the "Pook," or "Struck," or "struck with the Pook," and almost always attacks thriving young animals, from one to two years old. It does not always affect the hind extremities, or any limb, though this is most frequent; and an emphysematous skin enables the stockman to diagnose it. It happens frequently that there are no outward or visible signs of illness beyond dulness and positive refusal to rise; but in other cases there is lameness, the message sent to the veterinary surgeon being often to the effect that a young heifer has been "romped," or is lame from some other supposed cause, and on arrival the beast is found to be down, the respiration increased, and the temperature 104° to 106° . When no other special diagnostic symptoms are present, the practitioner can invariably be guided by the "muddled" heart-sound—I cannot use another word so expressive, though more scientific nomenclature might be found. It is as though the heart were fluttering in a great quantity of pericardial fluid, such as is sometimes heard when a piece of fencing wire or nail has found its way into the chest. Some few cases have presented all the features of Acute Pneumonia, and *post-mortem* examination has shown the lung structure black and broken up, like the spleen, and containing the characteristic bacilli in great abundance. Whatever special symptoms cases present, the end is the same, and that in a few hours—usually less than twelve, and rarely more than thirty hours from the time the beast is first observed to be amiss. It has usually been held by the farmers of this district that the "Pook" never affects lean, unthrifty, store stock or milch cows; but careful inquiry over a large district proves that the statement is not wholly correct, but that a larger number of fast-thriving youngsters fall victims to it than less favoured or older animals.

A recent outbreak of Splenic Fever among shorthorn cows

induces me to believe that, in the foregoing form, it has been often mistaken for something else, and hence the general opinion that cows cannot have it.

On September 28th I was called to Imberhorne Manor Farm, which is one of the best-managed in Sussex, having every possible convenience and comfort for the keeping and rearing of stock, no money or talent having been spared in the construction and management of the buildings, drainage, water-supply, etc., etc. My patient, a shorthorn cow, had fallen off her milk that morning, and arched her back a little ; which symptoms would not, perhaps, have attracted much attention only that one of the herd had been found dead a few days before. Examination showed nothing but an increased temperature (104.3°), and I promised to see her again in the evening. At 6 p.m. a messenger came to say she had fallen in a fit, and on my arrival she was dying. The cowman had been milking her, and he stated that she had given something like her usual quantity of milk, and seemed quite well again, till all at once she began to tremble, and he could only just get away in time to save her falling on him. A few minutes before she died, a quantity of bloody matter was voided *per rectum*, and *post-mortem* examination showed the spleen quite disintegrated ; the microscope revealed the presence of the characteristic bacilli in large numbers. On the 29th the whole herd were bled and physicked, and stall-fed instead of being turned out during the day. No further cases occurred till October 7th, when three cows were observed showing the same symptoms : "Violet," with a temperature of 105.5° , and the characteristic heart-sounds ; "Bumblehorn" wore an excited, anxious look, but only indicated 102.5° *per rectum* ; and "Lily" was off her feed. "Violet" was set apart as a probably fatal case ; "Bumblehorn" ranked doubtful ; and "Lily" had a cordial dose. On the morning of the 30th "Bumblehorn" was down and dying, "Lily" was apparently well, and "Violet" *chewing her cud, and giving her usual quantity of milk, with a temperature of 106.3° .*

At this stage Mr. Stock, M.R.C.V.S., of Lewes, was called in consultation (October 9th), but was unable to arrive at a ver-

dict, as he had not seen a *post-mortem* examination, and the removal of the suspects to a shed erected for the purpose had caused them to take cold, and during the time he was examining them they were coughing in such a suspicious manner that he wisely withheld his opinion. Thinking it impossible for "Violet" to survive another twenty-four hours, it was arranged for Mr. Stock to come to the autopsy, which he had the opportunity of doing next day, as the cow died about 10 a.m., being about seventy-five hours from the time she was first observed to be uneasy.

The *post-mortem* examination satisfied Mr. Stock that it was genuine Splenic Fever, and by his advice the cows were put on bran and hay obtained from a distance. On October 8th, another cow, "Imberhorne Duchess," was separated, as she had suddenly fallen off her milk and was coughing. On the 10th her temperature rose to 104° , but she was giving her milk, "cudding," and looking well. 9th as on the 8th. 10th, temperature 106° ; respiration 66, and symptoms of Acute Pneumonia. Blistered the sides, gave aconite and opium, and on the morning of the 11th the respirations were down to 45, and temperature 103° , since which time she has become quite well.

By post I send a specimen of splenic blood, mounted by Dr. P. E. Wallis. The *Bacillus anthracis* are few in number, but large, and the specimen is not so good as could be wished, as the bit of spleen had to be put in spirit, and was thereby too much hardened, pending an opportunity to make a section. This specimen was taken from "Violet," and I have observed that the bacilli are greater in number in proportion as the disease is rapidly fatal, the small number but large size in this specimen going to prove my observation.

The herd in question being of great value, I had thoughts of protective inoculation, and my client obtained from M. Pasteur a quantity of the first and second cultivations; but it was eventually decided, after Professor Axe had kindly given me the benefit of his advice, not to do it, and the cows have since had daily doses of hyposulphites, and no fresh cases occurred. I have looked in vain for some English veterinary surgeon's account of inoculation with attenuated virus, but without satis-

factory accounts from some one well up in the stirrups. A country practitioner can scarcely afford to make victims, at his client's expense, to demonstrate the practicability or otherwise of Pasteur's cultivations when applied to the prevention of such forms of Anthrax as we get here. In Pasteur's own pamphlet a great many precautions are recommended ; and if my reading is correct, an animal may die with the second inoculation if the first is not satisfactorily performed ; or, indeed, if it *is*, but does not "take" :—

“Quand on agit avec trop de précipitation parce qu'on est pressé par le temps et par le grand nombre à vacciner, il peut arriver, sans qu'on le remarque que l'aiguille traverse la peau, et le liquide vaccinal est rejeté au dehors. Il peut se faire surtout qu'on néglige de relever le curseur, et que, en poussant le piston, il n'entre pas du tout de liquide vaccinal sous le peau. Dans ces circonstances, s'il s'agit de la première inoculation préventive, comme le premier vaccin n'a pas été introduit dans l'économie, le second vaccin, plus actif, peut provoquer la mort.

“Le vaccin ne préserve pas les sujets en puissance du mal, il hâte même la mort chez certains d'entre eux.”

My client (E. Blount, Esq., C.B.) has set apart a two-year-old steer, which I yesterday inoculated with the *premier vaccin*, and if further observations in connection with him are worth recording, they shall follow, unless such experiments come within the meaning of the Vivisection Act.

The foregoing account may not throw any new light on the subject of Anthrax, but will be the means of much good if it induces some abler pen to give us the results of protective inoculation carried out in England.

SUPPOSED CASE OF EQUINE VARIOLA.

BY T. MARRIOTT, M.R.C.V.S., A.V.D., ALLAHABAD, INDIA.

July 9th, 1885.—White country-bred pony, 13 hands, 4 years old, admitted to the sick lines exhibiting the following symptoms : Temp. 103, pulse 55, respiration 20 and somewhat difficult (apparently arising from a sore throat) ; nose extended forward,

swelling around the larynx, and enlargement of the sub-maxillary lymphatic glands.

Treatment: Isolation; mustard to the throat; febrifuge medicine to be put in the drinking water; low diet.

July 12th.—Pulse, temp., and respiration unchanged. From both nostrils a slight discharge; soreness of the throat decreased, but still difficult breathing.

July 14th.—Lymphatic glands remain still enlarged. On examining the Schneiderian membrane it looked very much congested, giving the case the appearance of Scarlatina.

July 16th.—Pulse 60, temp. $102\frac{2}{5}^{\circ}$, respiration 20, and difficult, from obstruction of the nasal passages, caused by profuse thick discharge slightly tinged with blood. Upon examination, the nasal passages within range of vision were seen to be studded with elevations, some appearing as small congested specks of a deep red colour, others of a dull reddish-brown hue, and a few that had passed these stages presented small circumscribed depressions (with healthy granulations), caused by sloughing of the elevated mucous membrane. The pustular stage was very imperfectly marked.

July 18th.—The only changes noticeable were in the sloughs, which had become confluent over almost the whole of the visible nasal passages, leaving a healthy granulating surface, and the appearance of an eruption around the mouth, nostrils, scrotum, sheath, and arms. The vesicular and pustular stages were rather better marked than they were in the nostrils. Animal feeding a little better.

July 21st.—Formation of scabs on the site of the pustules.

July 24th.—A few of the scabs disappearing, leaving typical pit-like depressions, which remain clearly defined, but concomitant with the cessation of the symptoms of Variola, the sub-maxillary lymphatic glands which remained enlarged throughout now commenced to enlarge still more; applied bran poultice.

July 27th.—Remaining scabs have disappeared, leaving most typical pits; the submaxillary lymphatic glands are increased in size and contain pus. An incision was made and the pus escaped. Animal feeding a little better, but very much emaciated. Give vegetable tonics.

August 3rd.—Other small abscesses commencing to form over the parotid gland and base of the ear.

August 6th.—Abscesses lanced; others appearing along the chain of the cervical lymphatic glands.

August 9th.—These abscesses came to a point and were lanced; no more appearing; animal improving in condition. Continue vegetable tonics.

August 28th.—Discharged cured. The pit-like depressions remaining distinctly marked, especially upon the scrotum and sheath.

I may also add that Canine Variola is frequently seen here, the pustular stage being exceptionally well-marked.

DISLOCATION OF THE PATELLA.

BY H. TWEEDLEY, M.R.C.V.S., GLASGOW.

A QUESTION, on which the substance of the following essay depends, must be here promulgated, viz., Does luxation of the patella really take place, as it is commonly conjectured? Doubtless this question will excite astonishment, when the large number of cases described under the title are considered, and also when we consider how numerous are such cases which every practitioner believes he has met with in the course of his experience. But in spite of the large number of observations and facts, extending over a considerable period of time, the true nature of this accident, which is, moreover, pretty common, has been quite overlooked, and we have been entirely mistaken with regard to the real nature of the accident.

It is rather singular that this error has existed so long, and especially that anatomists have not rectified such a persistent error of practice.

To M. Chuchu, in France, belongs the merit of having abolished this error, and proving by anatomy the impossibility of the accident, which is considered as a dislocation of the patella, being a true dislocation, and giving the anatomical explanation of what it really is.

When the symptoms, considered as the expression of dislocation of the patella, are manifested, it has been conceded that they

depended on the displacement of the patella beyond its gliding pulley on the external side; the great height of the internal edge of the pulley dispelling the idea of the possibility of dislocation occurring in that direction. Being given this manner of conceiving the mechanical condition of what was believed to be luxation of the patella, the manœuvres to replace the patella have been conformable to this interpretation. Its displacement has been considered cognizable by a certain relief or protuberance which is in reality formed when the accident occurs. This relief—we have perceived it by the hand, and as, by a methodical pressure we succeed in causing its disappearance, and after its disappearance everything returns to order, the animal regaining complete freedom of motion; from this we have concluded that we have replaced the patella in its trochlear groove, from which it had departed by deviating outwardly. There is no truth in this judgment; but a pure illusion which must now be completely rejected, thanks to the explanations which M. Chuchu, inspired by his anatomical knowledge, has given concerning the nature of this reputed patellar luxation.

Anatomically, this luxation is impossible under the conditions in which practice admits of its existence, that is to say, with the ligamentous apparatus maintaining the patella in its relation with the femoral surface still intact.

There is no doubt that the adaptation between the gliding surface of the patella and the femoral pulley appears imperfect, when we only consider the bones deprived of their accessory appendages. But it must be remembered that the patella is completed on the internal side by a cartilage of prolongation which enlarges its gliding surface, and singularly consolidates it in its relations with the femur, by constituting a sort of pulley, in the groove of which the internal border of the femoral trochlea is enclosed, whence results a reciprocal reception of elevations and depressions of the two connected surfaces. The relief which the patella presents on the middle of its gliding surface being received into the groove of the femoral pulley, and on the other side, the internal border of this pulley, so prominent relative to the external, being enclosed in the groove of the pulley, which the internal complementary cartilage forms with the patella. Let

it be further remembered that strong connections resulting from this reciprocal interlocking, are very solidly maintained by the femoro-patellar capsule, strengthened, at its lateral parts, by ligamentous fasciculi wide and strong enough to be considered as special ligaments—which attach the patella on each side to the eccentric sides of the femoral condyles. Under such conditions of coaptation of surfaces, and solidity of attachment of the patella with the femur, its displacement outwardly is absolutely impossible, unless there is complete rupture of the internal strengthening fasciculus of the articular capsule. Now it is quite evident that in the case in which the symptoms of so-called dislocation of patella are manifested, this rupture does not exist, as, once the condition which has called forth these symptoms has disappeared, everything returns to its former order; the animal regains such liberty and regularity of action, that the existence of such a grave and painful lesion as that of rupture of an important articular ligament, could not be admitted.

It is evident, then, from these anatomical considerations, that the accident considered in practice as dislocation of the patella, is not a dislocation. The question now arises, What is it? Here again M. Chuchu, enlightened by anatomy, gives a completely satisfactory interpretation of the phenomenon, for it shows us the reality under the illusion.

In order to understand what really happens in cases where the patella appears dislocated externally, it is necessary to describe an anatomical disposition of the femoral and patellar surfaces, which appears to have escaped the attention of anatomists, for their works make no mention of it.

On the superior margin of the femoral trochlea, nearer the external than the internal lip of the pulley, exists a deep fossa, in which the trochlear groove terminates. The curve of the femoral pulley is, besides, not uniformly continuous, following the same radius to its superior margin. At about half-an-inch from this limit, the curve suddenly changes its direction and affects a straight disposition, constituting a sort of oblique plane separated from the curved surface by a well-marked stay or protuberance, which may be considered as the summit of an angle formed by the two parts of the trochlear surface at their point of meeting.

The same disposition occurs on the gliding surface of the patella, towards its inferior margin. There also the curve of the surface changes its direction, and instead of being continued, the surface of the patella, like that of the femoral trochlea above, affects a straight disposition, which adapts itself to that of the trochlea, and corresponds to it, at the moment of extreme tension of the leg on the thigh. It is to these anatomical dispositions, that so called dislocation of the patella is due. This pretended dislocation is nothing more than a temporary arrest of the patella on the superior entablature of the femoral pulley, an arrest which contributes in maintaining the fitting in, in the deep fossa of the superior border of the femoral trochlea, of a sort of prominent angle, by which the median elevation of the patellar surface is terminated towards its inferior border. As this depression, in which, so to speak, the patella is accidentally hooked, is nearer the external than the internal lip of the pulley, we thus find the explanation of the protuberance which the bone forms under the skin when in this situation, and also how this symptom has given rise to the idea of a veritable displacement. That is then the real interpretation of the phenomenon, and as a proof that this is the true interpretation, we can, on an anatomical specimen, place the patella under these conditions which prevent the flexion of the femoro-tibial articulation. To accomplish this, all that is necessary, is to allow the articular surfaces to become dry, and in this state we can place the patella on the superior entablature of the femoral pulley, where it is maintained so firmly that great difficulty is experienced in flexing the articulation.

Those are the mechanical conditions of this accident. It now remains to harmonise with these the etiological circumstances, in which we see produced what we will continue to call dislocation of patella; for this name, though it implies an error, may be maintained, provided its proper signification be understood. Since patellar dislocation is nothing but the result of a temporary arrest of the patella on the superior plane of the femoral trochlea, it would seem that this accident ought to have for its usual cause the energetic contraction of the pre-crural muscles, which, acting very powerfully on the patella, cause it to exceed

the line of demarcation between the curved surface of the trochlea and the plane surface which continues and terminates it superiorly. This is, however, not the rule ; dislocation is often produced in adult or aged animals, at the period of convalescence from serious diseases, such as Influenza, Pneumonia, etc.

It is also observed on young, untrained horses, when they are submitted to rather hard labour. What happens in these conditions ? Is it not, in the case of convalescent horses, that the considerable fatty pad or cushion, which is under the patella, behind the three patellar ligaments, is reduced in volume in consequence of the emaciation caused by the disease, and thus the field of movement from below to above of the patella on the trochlea, is increased proportionately to the reduction of the cushion, which would permit the inferior patellar ligaments to be stretched in all their length under the traction of the patellar muscles. The fatty cushion subjacent to the patellar ligaments no longer elevating, these so as to cause them to describe a curve, the effect produced would be the same as if the ligaments were lengthened to a degree sufficient to enable the patella to fix itself on the entablement of its trochlea, and momentarily be maintained there. No doubt, also, in the descent of the patella, a certain *rôle* belongs to a sort of spring action, represented by the elasticity of the compressed cushion, and this is wanting in those cases.

Such is the explanation propounded by M. Chuchu, of the predisposition to patellar dislocations, caused by emaciation resulting from grave diseases. As is seen, everything becomes clear in this question of pretended dislocation of patella, from the light of anatomy, and the interpretation which it inspires.

If general weakness, proceeding from the youth of the subject, or as a consequence of disease, constitutes frequently the etiological condition of dislocation of patella, it often occurs under entirely opposite conditions ; that is to say, on energetic subjects, either during progression or when violent efforts are made to disengage a posterior limb, confined either accidentally or otherwise. In these cases, the energetic contractions of the patellar muscles draws the patella to the extreme limit of its

field of gliding, and seats it on the entablement of the superior border of the pulley, where it is maintained by a sort of spasmodic state of the crural muscles, whose intensity of contraction is in proportion to the pain and inconvenience which the immobility of the limb determines. It is under these conditions that reduction presents most difficulty; for in order to obtain this we must overcome the resistance which the crural muscles oppose to any attempt made to replace the patella in its normal position.

Veterinarians formerly gave the name of "cramp" to what their successors had the pretension to denominate more scientifically "dislocation of patella." German and Italian authors have preserved this name (Kramm or Krampf, Grauchia, Crampo), and even before M. Chuchu had recognised and described its cause*; but to M. Chuchu belongs the honour of its anatomical demonstration, which is, besides, more complete and precise than other veterinarians. However, M. Bassi, of Turin, has called attention to an important point, which appears to have escaped M. Chuchu. When the patella has crossed the relief which above terminates the internal lip of the femoral trochlea, it remains fixed not only in consequence of the anatomical disposition of the parts, but also because the tension of the tibio-patellar ligaments, already considerable, must still increase when the patella turns round the most prominent part to regain its normal position. This is important from a surgical point of view, as it may sometimes be necessary to cut the internal tibio-patellar ligament, the extreme tension of which is the principal obstacle opposing the return of the patella to its normal position.

I will here relate a case which occurred in my own experience about a year ago, tending to confirm the statements of M. Chuchu in several points.

The subject was a light van horse, belonging to a "Baking Company" in Glasgow. At the time of sale he was suffering from a slight cold, and a few days after delivery I was called upon to treat him. I found him slightly fevered, and with a

* Meyer, in *Magazin de Gurlt et Hertwig*, 1852. Bassi, in *Medico veterinaria*, Turin, 1872-1875.

rather copious discharge from both nostrils; after a few days treatment he improved greatly, and I was asked to examine and give an opinion about him. On being brought out of the stable and proceeding a few yards, he suddenly seemed to lose complete power over the near hind limb, dragging it as if it were all of a piece, with the front of the wall of the hoof rubbing along the ground, and the sole of the foot turned up. On proceeding a few steps in this manner, he as suddenly regained command over the limb, and proceeded as if nothing had happened. I was at a loss to conceive what had occurred, and had the animal exercised for a considerable time in the walk, trot, backing, and turning, but could not discover the slightest trace of lameness or inconvenience in movement. I had him placed in the stable, and informed the foreman what had occurred, at the same time advising him to return the horse, as I considered he had probably suffered from a previous dislocation of the patella. As I was attending another animal in the same stable, I did not fail to have the suspected animal walked out daily, in order to discover a renewal of the symptoms I had previously observed. Nothing occurred for two days, but on the third day, after walking a few yards from the stable, I observed the symptoms I had previously noticed, but with one notable exception—the symptoms were on the opposite limb, the off—previously they were manifested on the near leg. He, however, very quickly recovered, and was walked and trotted, but the symptoms were not repeated. A few days after he was returned to the dealer, and I heard no more of him. Remarks on this case would be superfluous, after the clear explanations given above; but I may say the case tends to corroborate M. Chuchu's statements with regard to the state of the fatty cushion, or if this be incorrect, there is a predisposing cause in the state of the stifle which yet remains to be explained. The age of the animal in the case quoted was five years, and he was low in condition.

As regards the symptoms, treatment, etc., I will be very brief; as these, after the explanations already given, are of less importance, and I will simply make a few remarks which appear to confirm the explanations already given. The topical characters

of dislocation of patella are not so apparent as the physiological symptoms. To the eye, there is very slight deformity of the region; on manipulating, there is perceived the little prominent relief that the patella forms by being fixed in the femoral groove, and this relief is nearer the external than the internal lip of the trochlea. This prominence has given rise to the belief in a displacement of the patella outside its trochlear groove, a displacement which is impossible with the conditions of coaptation and attachment of this bone with the femur. As the patella has ascended very high, and is momentarily fixed above its gliding surface on the kind of plane which surmounts it, the subcutaneous relief does not occupy its normal situation; it is more elevated, and at the part where, normally, it is perceived by the touch, there exists a depression which has strengthened the idea of a luxation, and all the more readily as we had so prejudged.

In fact, the normal place of the patella in front of the femoral pulley is actually empty, and the bone forming a protuberance outwardly at a more elevated part, all seemed to indicate the reality of a luxation. But no reflection had been made on the inconsistency between this relief, admitted so easily, implying necessarily ligamentous rupture, with their persistent lesions; and the rapidity with which all these symptoms disappear at a given moment, without the animal appearing to have the least consciousness—from the double point of view of local sensibility and freedom of movement—of the accident, the symptoms of which were just before so marked. Such an instantaneous return of locomotary fitness, after such complete hindrance, was evidently incompatible with the gravity of material alterations, implying complete or incomplete luxation of the patella; for classical divisions admitted of described degrees of the accident, each with its proper symptoms, seen by the eye of the mind, which gave faith to that of the body. It is this faith, inspired with an erroneous conception respecting the nature of patellar luxation, that has caused the persistency of the belief in its reality. Another characteristic of patellar luxation is its short duration, which implies that it only depends on transient causes.

As to treatment, there is little to be said: all are acquainted with the methods resorted to in replacing the patella. Here, also, the success of the treatment supports the idea of the true relation of the patella which I have given above. If it is true that luxation of the patella is related to a state of weakness of the subject, either on account of youth and fatigue in training, or in consequence of emaciation caused by disease, the indications are to recur to good diet and careful exercise, which strengthen and improve the body. Indeed, it is commonly observed that it ceases being produced on young or convalescent horses, as, under the influence of these conditions, their strength increases.

Is not the part attributed by M. Chuchu to the decrease in volume of the articular fatty cushion, confirmed by the result of practice? From this point of view, alcoholic and other applications may be useful by stimulating local nutrition, and hastening the repair of the fatty cushion. Dislocation of the patella admits then, properly speaking, of preventive treatment.

I will say little with regard to the methods of operating in reduction of patellar luxation, except that—as arises from the explanations already given—traction on the bone should take place, not from without to within, as would be done if we maintained the idea that luxation had happened externally, but from above to below, in order to replace the patella in its normal position. Reduction often takes place spontaneously, either by giving the animal a sharp cut with the whip, or even by backing him, at the same time causing him to place the plantar surface of the foot on the ground.

Reduction being effected, now that the true nature of the accident is determined, should the irritating applications commonly applied, be now considered essential? This practice—which would be considered rational if the reality of the luxation were admitted, on account of the too great laxity of the means of attachment—must it still be preserved? At first sight it would seem that this indication does not exist, since the patella is not susceptible of being displaced outwardly, and the so-called dislocation is nothing but its too great ascent above the gliding surface, and its arrest on the oblique plane, by which this sur-

face is terminated superiorly. But it must be considered that when the patella occupies this position, it is brought by the very fact of the disposition of the femoral groove, and that of the plane on which it is fixed, towards the external side of the articulation, where it forms the protuberance which has given rise to the idea of luxation ; and it must be admitted that if, on this side, it encountered greater rigidity of the articular walls, their resistance might oppose to a certain extent its excessive elevation on the gliding surface. It may, then, be beneficial to apply the usual blistering, or other applications, after reduction is effected, to prevent the return of the accident.

It is probable, also, that these applications, by the pain which they cause, prevent the too energetic contractions of the crural muscles, and thus lessen the influence of the chief factor in the production of the accident.

But if these practices are indicated, and act beneficially, is such the case with setons placed along the stifle, medicated with various preparations, and allowed to remain for ten or twelve days? May not this counteract the end in view by causing absorption of the fatty cushion, that is to say, realising one of the principal conditions which favour the increased ascent of the patella? To this it may doubtless be answered, that the application of setons has been efficacious in this sense, that afterwards luxation has not been reproduced.

But that is not a proof of real efficacy, since experience testifies the fact of many cures without any topical applications.

However, the seton by its mode of action does not seem appropriate now, at least, when the nature of this accident seems well established.

Since reading the above essay, I have had an opportunity of verifying, by *post-mortem* examination, the facts therein propounded. The subject was a thoroughbred horse named Strathdon, and while engaged in galloping prior to running in a race, and being at full speed, suddenly fell very lame. On his rider dismounting, he found the animal very lame, and, indeed, scarcely able to walk ; with difficulty he was brought home, and three days after I saw him, when he presented the evident symptoms of luxation of the patella. All attempts to replace

the bone in its position were ineffectual, and as in other two days he was in a pitiable condition, I killed him, and on making a *post-mortem* examination found the patella fixed exactly as described above; and even on the dead subject it was impossible to replace the patella, owing to the extreme contraction of the muscles. The whole articulation was quite immovable.

A SIMPLE AND EFFECTIVE METHOD OF TYING DOGS.

BY GEO. KINNELL, ASSISTANT TO D. MENZIES, VETERINARY SURGEON, ST. AUSTELL, CORNWALL.

WHEN operating on a dog a short time ago, I hit upon an effectual and easy method of securing the legs of my subject.

In this instance, the legs were tied by means of two towels knotted together; but what I have since used, and find more convenient, is an ordinary stable bandage.

The length required for securing a large Spaniel dog is about nine feet.

The mode of procedure is as follows:—

1st. Step.—Pass the bandage underneath the body, and place it so that the middle part rests against the fore legs just behind the knees. Next, carry the halves upward and cross them over the back of the neck, at the same time pull them tight and twist them once round each other. By this means the legs are drawn up and kept with the knees close against the throat.

2nd. Step.—Pass the two parts of the bandage backwards and downwards, one on each side of the body, carry each round the hind leg of its respective side immediately above the hock, bringing them between the legs from behind forward. Lastly, carry the ends straight up and to the outside of the part running down from the neck, pull them tight, and tie them firmly over the loins.

The body is thus drawn into a crouching attitude, and the animal rendered incapable of executing any but the slightest movements.

In applying the bandage, it is necessary to pull the fore legs close up against the throat, to put down firmly the twist at the

back of the neck, and not to allow it to get relaxed while the second step is being carried out. With a quiet subject, tact, and a little assistance, the bandage can easily be put on in a minute.

I think this mode of tying might conveniently be employed in many operations (particularly in castration), during the administration of chloroform until the animal is under its influence, and in giving medicines.

GLANDERS-FARCY IN NATAL, SOUTH AFRICA.

BY S. WILTSHIRE, M.R.C.V.S., COLONIAL VETERINARY
SURGEON.

A RECENT outbreak of Glanders-Farcy in this colony has led me to jot down my experiences of this disease and a few observations on the causes which may influence its development in the mildest forms. If this paper is considered worth publishing, I trust it will induce those well acquainted with this disease to give their views upon the subject, for the benefit of the profession in general, and those members in particular who rarely see cases, and are not cognisant of the occult characters it assumes, as well as to correct any errors of my own.

On my return from England, in March last year, I found one of the horses of the Mounted Police isolated by my *locum tenens*, Mr. Duck, A.V.D., when I visited the barracks the morning after my arrival. This horse and another one had lately come from a station in a distant part of the colony to headquarters, and as one of them had a discharge from the nostrils, and Mr. Duck was suspicious of it, he directed them both to be kept separate from the other horses. I at once recognised the disease, and as ulcers rapidly developed on the nasal membrane within the next day or two, I asked Mr. Duck to come and see him and give a certificate, as I did not formally resume my duties until the 1st of April, and he was still nominally in charge, though I had practically relieved him.

In a few days the other horse showed symptoms which rapidly developed, and he was accordingly destroyed, as his fellow was.

On inquiring of the troopers who had brought in the horses as to the rest of the detachment, they stated that several of the horses had had sores about them, and I at once told the Commandant that I felt doubtful about them, and it would be a good thing to ask the Inspector in charge to report as to their state. This was done, and in his reply he said that, not feeling satisfied on account of these cases, he had asked some gentlemen in the neighbourhood to come and give him their opinions about them ; which they did, and said they thought the horses were surfeited, as they had a "breaking out" about them. On the receipt of this I at once said I felt sure that they had Glanders, and that the troop should be inspected.

Accordingly, on the day I resumed my duties—1st of April—I started on my journey, and three days later, on my arrival at the police camp, I inspected the troop and found six horses glandered, with several others showing suspicious appearances. The diseased ones I directed to be shot, which was done next morning, while the suspicious ones were carefully isolated.

Amongst the latter was a grey horse, to which I wish to draw particular attention. When I was examining the troop the Inspector said that he had had sores about him a short time before, but they were all well, and nothing was to be seen of them except in one place in the breast, just to the right of the cainiform cartilage, and between that and the point of the shoulder, where there was a corded absorbent vessel feeling like a piece of whipcord beneath the skin, and about an inch and a half in length. No other signs were visible, but I felt so suspicious of him that I was inclined to order him to be shot, though I decided to give him time. However, I requested the Inspector and his sergeant to keep a special watch on him, and if he showed any indications of sores, swellings, cough, discharge from the nostrils, or ulceration of the latter, to destroy him at once.

Amongst those that were isolated there were some that showed no decided indications of anything wrong ; but which my experience of Glanders-Farcy, together with the attendant circumstances, led me to regard with suspicion. Ordinarily, these animals would not have attracted my attention, although a long

and intimate acquaintance with this disease in its varied and most occult forms, has, I think, rendered my perception more acute, and perhaps made me somewhat suspicious.

On my return from this inspection I met with eight cases more at different places along the road, two of which are deserving of attention. The first one was a fine young draught-stallion, which, a few days before, had taken a prize at an agricultural show at Kokstadt, in East Griqualand; he had a discoloured discharge from the nostrils, ulceration of the Schneiderian membrane, and slight enlargement of the submaxillary glands. Two other (post-cart) horses in the same stable, and in the same condition, were destroyed, but the owner determined to ignore my advice with regard to this one, and keep him on to see whether he would get better, and, six months later, when journeying that way again, I heard that he was working daily on a farm, and apparently quite well.

The second one was in another part of the country, and I had to stop at one of the stages, and ride twenty miles across country, with a sergeant and trooper of the mounted police, to see this animal. He was a stout, good-looking, cream-coloured gelding, formerly owned and ridden by General Butler during the Boer war. He had a nasty discharge from the nostrils, and the membrane was of a dull leaden colour; no enlargement of glands, nor sores; condition good. Standing next to him was a horse badly glandered, and one had died of the disease two days before. I advised the owner to destroy both these horses, as the law did not empower us to do so; but he refused, and a few days later on brought the cream-coloured one into town for Mr. Duck to examine, who said it was a very suspicious case, but, in the absence of visible ulceration of the nostrils, he declined to say that it was glandered. He asked, however, if it had been in contact with the disease, and the owner assured him that it had not, that he had no glandered animals on his place, and so on; thus suppressing the truth. On hearing of this, I called on Mr. Duck and told him of what I had seen, which justified me in declaring this horse glandered, notwithstanding the absence of visible ulceration of the nostrils. A few weeks afterwards this man took these two horses, that I condemned, right through

the colony to the Transvaal gold-fields ; since which I have heard nothing more about them.

After reporting to the Government the result of my inspection, the detachment of police was sent away from their station to the seaside for the winter—a distance of about sixty miles—where they stayed until September, when they returned to their quarters. In the meantime they had done no patrolling, and several of the horses I had directed to be kept under observation had developed the disease and been shot ; but before recommencing patrolling, it was deemed advisable that I should inspect the troop, and accordingly, in the first week of October, I went down again. Unfortunately, three days before my arrival another case had been detected and destroyed, and on examination I found one other affected, and placed some more under observation. I very carefully examined the grey I referred to on my first visit, and, somewhat to my astonishment, could not find the slightest evidence of disease about him, and the Inspector said he seemed to keep in perfect health. I said I still felt confident that he had the disease in his system, and requested that he should be specially watched for any indications of it.

Nothing fresh occurred, and it was hoped that we had stamped out the disease ; but before releasing the troop from quarantine, and recommencing patrolling, it was deemed advisable that I should go down and inspect it ; and accordingly, on the 3rd of January of this year, I started, and three days later, on my arrival, I carefully examined every animal, but before proceeding far I discovered one with unmistakable signs of Glanders, which I then found was one I had requested should be watched on my last visit.

Several others presented suspicious appearances, the most conspicuous of which was my friend “the grey,” who had a discharge from, and bad appearance of the nostrils, and a weak, bleary condition of the eyes—a common symptom in Chronic Glanders. The following day (Sunday) was a damp, miserable sort of day, with drizzling rain, and it was reported to me that he was breathing quickly. However, as I had no doubt about the cause, I adopted no treatment, as I had decided on recommending him to be destroyed with the others, after I had reported

to the Government ; but I asked the Inspector to note his condition, and let me know, for my information.

Later on I was informed that, after I left, he steadily got worse, his breathing becoming very bad. There was ulceration of the Schneiderian membrane ; the absorbents down one side of the neck, extending to the breast, were corded ; he had considerable swelling down the insides of both fore legs, and he also became weak in the hind quarters ; and, finally, was unable to rise, and had to be destroyed before orders were received from headquarters as to the disposal of the lot. No *post-mortem* examination was made.

On my return to town I reported the state of the detachment to the Government, and pointed out the difficulties in the way of dealing with the outbreak, the uncertainty as to how many—or whether all—of the horses were affected, and when they could be considered safe ; and, as no mounted duty had been done for nine months, they were—and were likely to be—practically useless ; besides which, they would always be looked upon with suspicion. The question, therefore, was whether it would not be safer and more economical to destroy the whole troop than keep a lot of horses, at considerable expense, which could not be used for duty, were dangerous to human life, and rendered the services of the men of no avail.

The Government considered my suggestion, and very wisely, as I think, ordered the destruction of the whole of the horses of the detachment, as well as the stables, and, after re-mounting the men, sent them to another part of the district, where they still remain. Of course, cleaning and disinfecting the stables, and other sanitary precautions, were taken after these inspections.

The question of Glanders-Farcy has been one of the most difficult and unpleasant with which I have had to deal in this country. It happened to be the first subject which the Government directed me to inquire into, as its existence was denied when I first came into the colony. Fortunately I met with a very well-marked case which I could not mistake, and when my report was published I was assailed in all directions by men who asserted—as some do still—that there was no such disease in the colony, that it was Nasal Gleet, and no end of nonsense of a like

character. Very soon, however, I met with cases of Chronic Glanders, where there was no ulceration of the nostrils visible, and which, of course, defied all attempts at cure.

One case in particular I had under observation for over a year before I finally condemned it; after which it was sold by the unscrupulous owner, and infected two valuable carriage-horses worth £120, which led to a lawsuit and the extension of the infection to other horses.

Later on I was requested to examine the horses running on one of the passenger lines to the seaport, a distance of about fifty-four miles. There were nine stations in all, including the two termini, and, including spare ones, about seventy horses. It was here that I gained experience of the different phases of the disease—from the most defined to the most occult—that has since proved so valuable to me. What first struck me was the large extent of the ulceration of the nostrils, where it was present, the dust and mucus forming large scabs over the ulcers; next, I noticed that in the greater number of cases the submaxillary glands were not enlarged, and those that were, were not fixed to the jaws.

Examining these horses as I did every month, I soon learned to value the condition of the nasal membrane, and remarked the dull reddened or streaked condition of it, indicating that the disease was in the system, though the stage of ulceration, or the appearance of Farcy buds had not been reached. I was particularly impressed with the white streaks and stellate patches in the nostrils of horses which afterwards proved glandered, as well as those in which the disease had grown milder, and the animals were supposed to have recovered from it; though, as far as I have been able to trace them, they have all ultimately succumbed to the disease. In a few instances I have met with pit-like depressions on the Schneiderian membrane, somewhat like pock-marks, but they were rare. In chronic cases, where no lesions of the disease are visible in the nostrils, I almost invariably note the weak, bleary condition of the eyes, specially in the inner canthus. In other cases—chiefly, as far as I can remember, preceding the development of Acute Farcy—the conjunctiva was of a yellowish tint. Cough was seldom

present; and I don't recollect any case where abnormal urination was observed.

One of the most interesting and instructive cases that it has been my lot to meet with came under my notice first in the early part of 1875. The animal, a young grey mare, was brought to me for examination one morning before breakfast. It had a nasty discharge from the nostrils, both of which were ulcerated, and there was enlargement of the sub-maxillary glands. The case was so well defined that it did not require a second look, and I advised the person who brought it to take it away and shoot it. Shortly afterwards I met the mayor of the town, who remarked that he had seen the horse being brought to me for examination, and that it was not right that an animal in such a bad state should be led along the streets. A few months afterwards I was going on an official visit to a distant part of the colony, and on the morning of the day I started one of the lawyers practising here came and asked me if I would attend the court and give evidence about this case, as there was a dispute about the sale of the mare previous to my examination. I declined, unless subpœnaed; and as that did not come before I was ready to start, I left, and heard no more about the matter, but concluded that the horse was destroyed or had died, and I thought no more about it.

Two years afterwards, a man came to me one morning, just as I was at breakfast, and said he had brought his horse to me for examination because his neighbour threatened to report him for allowing it to run loose and drink out of the stream which supplied his house with water for drinking and general purposes, declaring the animal was glandered. The owner insisted that it was not, but he determined to bring it to me for the benefit of my opinion. On going out to look at the animal I found a very useful-looking grey mare, in excellent condition, and with a good coat. The owner said he had had her about two years, and, with the exception of a very slight discharge from the nostrils, that she had nothing the matter with her. He rode and drove her, and used her for ploughing and other farm-work, which she did well, and without showing any signs of distress. She had no cough, and fed well. I then made a very careful exami-

nation of her, and could find no enlargement of the glands, nor any indications of Farcy; but there was a very slight discharge from the nostrils and some white streaks and patches on the Schneiderian membrane. I felt very doubtful about the case, and decided not to give an opinion that day, and told the man so, asking him if he would bring it in again a few days later, which he readily consented to do. I then looked up all the authorities I could on the subject, which were very few, as I had none of the advantages of Fleming's and other works then; and I thought over and compared this with other cases I had seen amongst the stage-horses. When he brought the animal again, I examined it most carefully, and then told the owner that his horse had Chronic Glanders; that it would appear well and do its work, and continue so for an indefinite time, which might be weeks or years, but that it was liable to infect other horses, and was dangerous to himself and others who attended it; that, therefore, he would do well to destroy it, but if he refused to do so, I had no power to compel him, though he must not let it run at large nor use it on the public roads.

A day or two afterwards the man appeared again with his mare, accompanied by Mr. J. W. Winter, M.R.C.V.S., who had retired from the profession, but who often gave his opinion when asked, as he was in this instance, as the owner was not satisfied with the opinion I had given. Mr. Winter asked what I had told the man, and I replied that I had said the mare had Chronic Glanders, and was dangerous to other horses and to any person attending it, and so on; upon which he turned to the man and said: "Now you hear what Mr. Wiltshire says, and you had better take his advice and keep it isolated, etc.," and they then left. An hour or two afterwards I met a neighbour and friend of this man, who told me—to my great astonishment—that this was the same mare that I had condemned two years before, and that several people were curious to know what opinion I should give.

Shortly after this, the neighbour first referred to made a complaint, and the owner was prosecuted for contravention of the Glanders Law in allowing this horse to run on unenclosed land; and at the trial before the magistrate I gave evidence to the effect

that the animal had Chronic Glanders, and was incurable ; and, on the other side, Mr. Winter said that there was no doubt that the horse had had Glanders at some period, but that he differed from me, as he was of opinion that Glanders was curable, and that the animal was suffering from Nasal Gleet at this time. The magistrate, in summing up, said that the evidence of the two professional gentlemen was opposed, and therefore he must give the defendant the benefit of the doubt, and dismiss the case. From information I have lately received about this mare, I learn that she is very thin, broken-winded, has a discharge from the nostrils, and there are reasons for believing that she has conveyed the disease to other horses that have died of it. Certain it is that some of the neighbours will not permit her to enter their stables, and I understand, too, that her owner rarely, if ever, takes her away from home.

During the Zulu war I was in medical charge of the Remount and Mule Train Depôts for a period of about eight months, during which I saw many cases of Glanders-Farcy in every stage of the disease. The most interesting cases, however, were those which occurred amongst the large American mules brought from the United States. When the first lot arrived at this place, Mr. Gudgin, P.V.S., and I went down to inspect them early in the morning, and finding one with a discharge from the nostrils we had him isolated some distance from the camp, where he was secured to a picket peg. Other cases quickly followed, which were secured in the same way, until we had seventeen in all. Each animal was carefully inspected every day by me, and very often by Mr. Gudgin also, and every precaution was used to prevent contact with them, and every article used about them, and the coloured attendants were not allowed to go near the other camps.

Some of the cases soon developed in the ordinary way, but most of them were of a very occult character. It was interesting to watch the fluctuations of the disease ; oftentimes an animal would look bad for a few days, showing it in the eyes and nostrils particularly, and we began to anticipate such a development of the disease as would justify us in destroying it, but all at once it would appear better, and in a short time look

as though it might be discharged at an early date. This happened several times, particularly with the mule first isolated—a brown one—which finally did not show any ulceration of the nostrils till four months after its isolation ; and another—a chestnut—which was nearly the same time.

The extent to which Glanders-Farcy has spread in South Africa, and the damage it has done, does not appear to be realised ; and even now there are to be found men who deny the existence of the disease in the country. Others, again, persist in trying to effect cures of cases, sometimes with disastrous results, as happened in the following case. I was sent for one Sunday morning, early in January, 1883, to see a horse belonging to the market-master of this city, who had bought it some months before from the military authorities when they sold off a lot of the horses used in the Boer war. When I saw the animal I found it badly glandered, with Farcy buds on the legs and various parts of the body. I at once strongly urged the owner and his sons to destroy it, and specially pointed out the danger they exposed themselves and their Kaffir servants to in attending to it, and also the danger to other horses, and so on, as well as advised what measures for disinfecting the stable, etc., should be adopted, but declined to recommend any treatment. A few months after, I left for a visit to England, and on my return to the colony last year I heard that one of the sons had died a shocking death from this terrible disease. I found that the owner—a very good fellow in his way, but impulsive—would not take my advice, but determined to try and cure the horse ; and this son in cleaning the sores is believed to have been inoculated through a sore on his hand, and I believe his sufferings were dreadful.

When I met his father after my return, he said : “ You have heard about my poor boy ? It’s all my fault, and there’s no blame attached to you. You cautioned us about it, and told us of the risk, and advised us to destroy the horse, and did the best you could ; but we rejected it, and the blame rests upon us.” I felt very sorry for the old man ; for the youth was a nice young fellow, and could be ill spared.

Possibly some may be surprised that the Glanders Law was not

brought into operation ; but it will cease when I explain that it is one of the most inefficient laws that was ever framed, and for all practical purposes is utterly useless, as I have repeatedly pointed out to the Government ; but now a new law is before the Legislature, which, I trust, will give my department greater powers and recognition, and prove efficient when it becomes necessary to enforce its provisions.

The influences which affect the development of Glanders-Farcy, both in its most virulent and occult forms, are—to me—a very interesting study, and have often set me thinking ; but I am afraid that I can add very little to the solution of the problem. Of course, I know that the disease is due to a bacillus, and I am acquainted with the results of the cultivation of the microbe outside of the animal body, and the experiments with the cultivated germ on animals. But that does not explain why, in the case of a number of horses under exactly the same conditions, some should develop the disease in an acute form, while others show it so obscurely as to leave the observer in doubt whether they have it or not. Can it be due to individual cachexia, depending on the temperament of the animals ; so that those with a sound nervous organisation, that digest their food well, and have all their assimilative and excretory organs in good working order, are enabled to resist the effects of the disease, while those of a lymphatic temperament and gross habit of body, and in which the eliminative processes are defective, are eminently susceptible ? These influences, it has often occurred to me, are important factors ; and this, I think, is further borne out by the conditions known to be favourable for the manifestations of the disease, viz., bad sanitary conditions, such as “ ill-ventilated stables, confinement on board ship—when, from bad weather, sufficiency of air cannot be given—the debilitating effects of bad food and disease.” Of the latter cause I have had experience, and have often found an animal develop Glanders after an attack of the low form of Anthracoid Fever which prevails here ; and it is recognised as a sequel of Strangles, Influenza, and the like.

Again, anything that rouses the absorbents into action assists in its development ; for instance, the administration of a brisk aloetic purge to an animal that is suspected will often bring it

out ; starvation and hardships are also potent agencies, as shown by the following cases. In 1879, at the close of the Zulu war, the horses of the 17th Lancers, King's Dragoon Guards, and other branches of the service, were sold ; a large number of these went into the Orange Free State and Transvaal, while the rest were scattered all over this colony ; but the moment they left the care of the military, instead of being well fed, as they were accustomed to, they had to subsist on the veldt, where the grass is much less nutritious than English grass. The result was that hundreds soon died of starvation, a large number of which developed Glanders-Farcy, though at the time of their purchase they showed no signs of the disease.

I wish it to be distinctly understood that I do not believe in the spontaneous generation of this or any other contagious disease, though I am convinced that they may remain dormant in the system until some cause, which cannot always be recognised, renders them manifest.

It is much to be desired that members of our profession would publish their experience of this disease for the benefit of students, young practitioners, and those who rarely meet with cases of Glanders-Farcy, as well as those of us who may have overlooked some phases of it. It is wished also that *savants* who possess the knowledge, and have the means for working in out, would give us the life history of the Glanders bacillus ; its effects upon the blood and other tissues of the body ; the particular elements the organism appropriates for its nourishment and development ; and, lastly, the readiest way of detecting the microbe with the microscope. Seeing is believing ; and to those, like myself, living on the frontiers of civilisation, amongst people whose isolation leaves them in the rear of the march of progress, it would be of great value to know a ready method of demonstrating the presence of the germ when our opinions are questioned, as we have not the advantage of obtaining the valuable personal and moral support of the leaders of the profession, like our more fortunate brethren at home.

GLANDERS IN HONOLULU, HAWAIIAN ISLANDS.

WE have received from a correspondent in Honolulu, some particulars regarding an outbreak of Glanders in the Hawaiian Islands, which are of much interest with regard to the geographical extension of the disease, especially in the Pacific, and the danger to which Australia and New Zealand are exposed from that quarter.

In October, 1884, it was discovered by a veterinary graduate of the Montreal School, that Glanders was actually present in the Hawaiian Islands, which are situated within the tropics, 2,000 miles from San Francisco, and on the direct route of the Mail Steamers to and from our Colonies. It may be mentioned that there are four principal islands, with a population altogether of about 75,000 people; 40,000 of these are natives, the remainder being Europeans, Americans, Chinese, etc.

The principal export of these Islands is sugar, and for the production of this a great many mules and horses are employed; altogether the value of this stock is considerable.

It seems that owing to the widely scattered condition in which the plantations are situated on the different islands, it has not been considered profitable to invite a veterinary surgeon to settle in the kingdom; but one was finally appointed. When he arrived he found great ignorance in regard to veterinary science prevailing, and the charlatans in full sway. The erroneous impression which he found most difficulty in removing from the minds of the people, and which they said they derived from such veterinary works as they had, was that Glanders could not exist in a *tropical country*.

The law of 1844, as amended by the session of legislature of that kingdom, with reference to the suppression of diseases amongst animals, gives full power, it appears, to quarantine all suspected animals, and, if necessary for the protection of the interests of the healthy stock, to utterly destroy them.

The first two months after the arrival of the veterinary surgeon, he did not enforce the law, as he found so many horses affected with Chronic Glanders, and working every day, some of them

valued at from two to five hundred dollars, and the Government not having made any appropriation for the purpose of paying for part of the loss sustained, that he merely warned the owners of diseased animals of their danger. He, however, destroyed quite a number that were given voluntarily to him, and made ten or eleven *post-mortem* examinations, chiefly to instruct and convince the public of the true nature of the disease.

In December, however, having secured a suitable quarantine ground, he was requested by His Excellency, C. F. Gulick, Minister of the Interior, to enforce the law ; and from December up to the 30th of June of this year, when he sent in his half-yearly report to the Minister of the Interior, he had destroyed eighty-eight horses and two mules. This was in Honolulu alone, where, however, most of the disease existed.

When he began the enforcement of the law, he met with no opposition from the owners, so thoroughly were they convinced of the fatal nature of the disease. The value of the animals destroyed would have been, had they not been diseased, 25,000 dols.

From the most reliable accounts which could be obtained, the disease—Glanders—has been on the islands five years, and was brought by means of diseased horses and mules from San Francisco, U.S.A.

The loss in Honolulu previous to the arrival of the veterinary surgeon, as near as could be ascertained, was 40 horses ; on the Island of Mani, 150 mules, valued at 30,000 dols. ; on the Island of Hawaii, 75 mules, valued at 15,000 dols. ; on the Island of Kanai, 15 mules, valued at 3,000 dols. Making a total of 370 horses and mules, valued at 79,000. But there were, no doubt, many more animals lost.

At the date when this information was dispatched, the veterinary surgeon had made a tour of inspection of all the islands, and found that the disease was almost entirely eradicated.

In Honolulu, since the 30th of June, only five animals have been destroyed, and these had been suspected for some time.

Altogether fifteen *post-mortem* examinations had been made, and some very valuable pathological specimens of the septum nasi and submaxillary lymphatic glands and lungs were procured.

The last *post-mortem* made was on a thoroughbred stallion, valued at 5,000 dols., the property of the king. The veterinary surgeon condemned this animal as glandered last November, but the king, believing he could be cured, had him removed to the country to an isolated paddock, and attended by native doctors; but all to no effect, and he was given over to be destroyed. This stallion was in good condition when destroyed, fully one inch of fat on his ribs, but the septum nasi was almost entirely covered with cicatrices, and the superior turbinated bone on one side was firmly adherent to the septum, caused doubtless by the extreme inflammatory process which had taken place for a considerable period. The lung tissue was simply infiltrated with Glander nodules. No further outbreak of the disease was anticipated, and all animals are now subjected to a rigid inspection on arrival from any foreign port. Amongst the animals destroyed, the majority were affected with Chronic Glanders; a few of them began with farcy symptoms, and soon they terminated in Glanders.

When mules became affected, it was almost invariably the case that they had the disease in an acute form, and died within from four to ten days.

A native had died, who, according to the physicians who attended him during his illness, was in all probability affected with Glanders.

Editorial.

PROTECTIVE INOCULATION FOR HYDROPHOBIA.

THE wonderful results which we have from time to time recorded as following M. Pasteur's method of protective inoculation against certain contagious diseases of animals, have been eclipsed—so far as present appearances go—by what he has attempted to do with regard to Hydrophobia. Hitherto his experiments have only been carried on with animals, in which he has demonstrated, in the clearest and most striking manner, the great value of his discovery of protecting the organism by what is termed “attenuated virus”; but now, according to a statement he recently made to the Academy of Sciences of Paris, so confident is he of the efficacy of his method, he has ventured on the bold step of inoculating human beings who had been bitten by supposed rabid dogs, with the modified virus of Rabies, with the view of preventing the development of the disease in them.

As we have before mentioned, M. Pasteur some time ago succeeded in rendering proof against Rabies some sixteen out of every twenty dogs experimented upon ; but to ascertain that immunity had really been conferred, he had to wait four months after the inoculation had been made. He therefore set himself to obtain virus of different degrees of strength, with the object of obtaining prompter and more certain results. This was effected by the following means : A rabbit was inoculated with a fragment of tissue taken from the spinal cord of a rabid dog. The incubation of the poison occupied fifteen days. As soon as the rabbit was dead, a portion of its spinal marrow was in turn inoculated into a second rabbit, and so on until sixty rabbits had been inoculated. At each successive inoculation the virus became of increased potency, and the last period was not more than seven days. Having ascertained that exposure to dried air diminishes the virus, and consequently reduces its force, M. Pasteur supplied himself with a series of bottles containing dried air. In these bottles were placed portions of the inoculated spinal marrow of successive dates, the oldest being the least virulent, and the latest the most so. For an operation, M. Pasteur begins by inoculating his subject with the oldest tissue, and finishes by injecting a piece dating from two days only, whose period of incubation would not exceed one week. The subject is then found to be absolutely proof against the disease.

At the beginning of July a young Alsatian, named Joseph Meister, who had been severely bitten in several places by an undoubtedly rabid dog, presented himself at the laboratory. His case, left to itself, being considered hopeless by M. Pasteur, Professor Vulpian, and other high authorities, the patient was submitted to the same series of inoculations that had been so successful on dogs. As a proof, a series of rabbits were simultaneously subjected to the identical processes. In ten days, thirteen inoculations were made with pieces of spinal marrow containing virus of constantly-increasing strength, the last being from the spine of a rabbit which had died only the day before. The youth thus operated upon by the successive administrations of weaker virus seemed to be made proof against the virus of the intensest strength. It was then (when Pasteur made his statement) one hundred days since he underwent the last inoculation, and he is in perfect health. Those rabbits, on the contrary, which were at once inoculated with the strong virus, without first being rendered insusceptible to its action, became affected within the proper incubation period, and died with the usual symptoms. The first inoculation practised upon Meister was sixty hours after he had been bitten. M. Pasteur had also at that time another human patient under treatment who was bitten a few days before by a mad dog.

M. Pasteur said it would now be necessary to provide an establishment where rabbits might always be kept inoculated with the disease. In this way there would constantly be a supply of spinal tissues, of both old and recent inoculation, ready for use. Before the sitting was adjourned M. Pasteur received an enthusiastic ovation from both the Academy and the public present.

We learn that some individuals bitten by a rabid animal in Algeria

have arrived in Paris to undergo his treatment, and no doubt he will have many more claimants to this attention. In dealing with such a disease as this, prudence dictates caution in speaking confidently as to the probable success of protective inoculation.

The fact that only a certain percentage—and that a comparatively small one—of people or animals wounded by rabid dogs take the disease, and that the period of incubation is very uncertain, and often most protracted, renders caution necessary in giving an opinion as to the value of this prophylactic measure; and it will require a larger number of cases and a longer period of observation, before even those who have some faith in such a method can accord it their full recognition as a means of warding off this terrible malady in those who chance to be infected. And if it should happen that it proves successful, it is a question whether it can be utilised practically in extinguishing the disease. For ourselves we are at present of the opinion that well-devised and rigidly-enforced sanitary measures could certainly and speedily rid us of the scourge, and do away with the necessity of resorting to this very delicate, and perhaps very uncertain, operation practised with so much hardihood upon his own species by M. Pasteur.

TUBERCULOSIS.

At a recent meeting of the Paris Biological Society, Professor Nocard, of Alfort, stated that he had succeeded in cultivating the *Bacillus Tuberculosis*. On pursuing Koch's method, he arrived at negative results. He therefore modified the cultivation medium, by adding 1 per cent. of peptone to horse serum, 0.25 of sugar-candy to a hundred parts of serum, and the same proportion of sodium chloride. These additions were made before gelatinisation was effected. The first three cultivations were made according to this method; the fourth was effected in pure serum of horse's blood, but the process was slower. According to M. Nocard, all domesticated birds are liable to Tuberculosis; the bacillus found in them is identical with that of tuberculous mammals. In 1884, Johne (*Zeitschrift für Microscopie und Fleischhand*) published some facts concerning a poultry-yard which was infected with Tuberculosis on the arrival of a phthisical person, whose sputa were poured on to the dung-heap in the poultry-yard. M. Nocard has published, in the *Recueil de Médecine Veterinaire*, three instances similar to that described by Herr Johne. Careful investigation demonstrated that the birds succumbed from Tuberculosis after tuberculous sputa were mixed with their food. M. Nocard's data furnish proof that Tuberculosis can be communicated to birds by animals. At Vevers there is a tripe shop attached to the slaughter-house. The proprietor of the shop has a small poultry-yard; most of the birds in it die from Tuberculosis. They are fed on diseased parts of the animals which are unfit for sale, especially lungs, liver, spleen, and tuberculous glands. By inoculating with tuberculous matter from animals, or mixing it with the food, M. Nocard has killed four fowls, six pigeons, and a turkey. These all died in a space of time varying from six weeks to four months. In three instances they were fed on chopped-up lungs and tuberculous glands removed from a horse and two cows, all of which were phthisical. M. Vignal, at the meeting of the Paris Biological Society, pointed out that the addition of sugar, sodium chloride, and peptone to serum, indicated a completely new medium of cultivation.

Proceedings of Veterinary Medical Societies, &c.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE Quarterly Meeting was held at Blackfriars Hotel, Manchester, September 9th, 1885; the President, Samuel Locke, Esq., in the chair.

Mr. EDWIN FAULKNER read a good practical paper on Septicæmia, in which he discussed its pathology, and cited the opinions of various authorities; he pointed to its varying degree of virulence, and to modifications as seen in the human subject and in our several classes of patients. Especial attention was given to that form which follows parturition. Mr. Faulkner appended notes in detail of several cases, comprising examples of the *post-partum* variety in the mare and cow, and one following castration in the horse.

A very good discussion ensued, in which the following gentlemen took part:—Peter Taylor, Thomas Greaves, J. S. Hurndall, W. Dacre, E. Meek, T. Hopkin, G. G. Mayor, W. A. Taylor, J. Lawson, and J. B. Wolstenholme.

After Mr. FAULKNER had replied, a vote of thanks was given to that gentleman for his paper.

MR. B. WOLSTENHOLME.

Hon. Secretary.

THE WESTERN VETERINARY MEDICAL ASSOCIATION.

THIS Association held its fourth meeting in the Half Moon Hotel, Exeter, on October 15th; the President, J. A. Collings, Esq., in the chair.

On the motion of the President, it was resolved that Rule 6 shall read as follows:—"That the officers of the Association shall be a President, Vice-Presidents, a Treasurer and Secretary, who shall be elected annually at the General Annual Meeting, such office-bearers being eligible for re-election."

Mr. J. P. HEATH gave notice that at the next meeting he would propose this Association should form a Mutual Defence Association.

Mr. PALLIN exhibited a horse-shoe in which there were twenty-three perfect nail-holes. He said the farrier of his regiment, in a fit of temper, made the shoe and fastened it on a horse by driving a nail into every hole; but, strange to say, without pricking the animal.

The PRESIDENT then called on Mr. Olver to read the following paper, entitled:—

"A FEW OBSERVATIONS ON THE WARBLE-FLY OR OX BOB-FLY."

The subject which I have chosen for my paper is one which is undoubtedly well known to the whole of you, it being that of the Ox Warble-fly or Bob-fly, scientifically known as the "*Æstrus bovis*" (Clarke), "*Hypoderma bovis*" (De Geer); but probably very few of our clients know the cause of the lumps they so often see on the backs of their cattle, which at certain seasons of the year appear to give them so much trouble; neither are they aware how much it deteriorates the value of the hides, and I am one of those who believe it is our duty, as far as possible, to make them more familiar with such subjects.

In no branch of medical inquiry has there been more progress made within these last few years than that of helminthology, and there is no class of people who get less encouragement than the helminthologist. For it sometimes requires months of precious time spent in research to acquire possession of a single new fact of any practical importance; and when the dearly-purchased truth is at length enunciated, it is soon bandied about without the smallest concern respecting either the toiler or the toils which together gave it birth.

Parasitic diseases, more than any other disorders of domesticated animals, make themselves felt by the community, for they spread rapidly among

herds, are often very fatal in their effects, and cause a large pecuniary loss by diminishing their value, and not unfrequently can originate disease of a like kind in man. Little has been written in connected form regarding the history of the ox warble attack since the time of Bracy Clark's well-known treatise, until the recent observations of Miss Eleanor A. Ormerod, Honorary Consulting Entomologist of the Royal Agricultural Society of England, from whose work I have collected some of the following facts :—

The ox warble-fly or bob-fly is a two-winged fly, upwards of half an inch in length, so banded and marked with differently-coloured hair as to be not unlike a humble-bee. The face is yellowish ; the body between wings, yellowish before and black behind ; the abdomen whitish at the base, black in the middle, and orange at the tip ; the head is large, the wings brown, and the legs black or pitchy, with lighter feet. The female is furnished with a long egg-laying tube, but whether she inserts her eggs into the hide or lays them on it has not been made out with certainty. Egg-laying takes place during the summer ; it may begin in the month of May, but the time varies with weather, and with the cattle being on low land or hill pastures.

The egg is oval and white, with a small brownish lump at one end.

In Cornwall the insect generally deposits its eggs from the middle of July to the middle of August, and, judging from the way the cattle gallop about the pastures, with tail erect, I am inclined to think the ovipositor pierces the skin, and the egg is deposited within it ; but it should be borne in mind that the damage from galloping is in part caused by the ox gadfly, "*Tabanus bovinus*," which is a very different insect to the warble-fly. The gad fly drives its jaw lancets into the cattle, and sucks the blood, consequently causing severe pain, whereas the warble-fly has nothing but an obsolete mouth. If the flesh side of the skin be examined early in the winter, the first appearances show that of small swellings, bluish in colour, as if a large shot was under the skin, and much inflamed around.

The maggots will then be very minute and blood-coloured (due to their feeding on extravasated blood), and lying free (not in a cell), with a fine channel down through the hide where they lie.

It is important to note that this channel varies in direction, sometimes being perpendicular, others more or less obliquely, and again sometimes wavy.

Open warbles may generally be found about the end of February. The maggot is now white, not feeding on bloody matter, wormlike, and with strong mouth-hooks ; in its next stage it is club-shaped, and has the power of inflating itself by drawing in fluid, and lying small end uppermost, thus pressing the opening through the hide larger ; in its next stage it gains its well-known shape, with a thicker and more prickly skin, the warble-cell at the same time gaining its membranous coating. The maggot can move up and down, but commonly has its brownish-tipped tail at the opening, and it draws in air through breathing pores in these brown-black tips or spiracles. The mouth end is down below, feeding in the ulcerated matter caused by the irritation of the mouth-parts. The maggot cannot protect itself from applications, therefore anything put on the opening where the breathing tips show will choke the breathing apparatus, or run down the hole and poison the maggot. The earlier this is done in the season the better it will be for the animal, and the less difficulty there will be for the warble-holes healing.

Several modes of preventing the attacks of the fly have been suggested, neither of which, in my opinion, are very practical, and could not be well carried out in large herds, especially those which range over extensive tracts of land.

Among them are the following, viz. :—

1. Applying mixtures of such a strong smell as may be obnoxious to the fly, and overpower the attraction of the smell of the animal.
2. Applications that would stick the fly fast, or kill the egg.
3. Washes which would clear off the eggs or destroy them if laid on the skin, or if lying just beneath the outer cuticle.
4. Protection afforded to cattle by being housed at egg-laying time.

I presume you are all aware that when cattle are standing in water the fly does not attack them, consequently it is highly important that there should be plenty of water in pastures where animals are kept during the summer months.

With regard to the methods of remedy, there does not appear to be any difficulty in getting rid of the warble-maggot when it is what is termed ripe. Miss Ormerod, in her pamphlet, recommends that each warble be "*just touched*" with a little mercurial ointment, which, in my opinion, is very much too dangerous a preparation to be used by people who are not aware of the evil consequences that may arise from its too free application, especially when much more simple and non-poisonous agents are equally effectual.

Any greasy preparation containing a little carbolic acid or tar, and even ordinary cart-grease, is said to have the desired effect. Many of the leading agriculturalists of England have followed Miss Ormerod's advice, by using a little mercurial ointment, with very satisfactory results, but a client of mine, who has a valuable herd of shorthorns, was induced, from articles and letters he had seen in the agricultural journals, to try it on his cattle—about fifty—in the latter part of May of this year. In about a fortnight after its application, finding that two or three of his cattle were unwell, he requested me to see them, which I did, and was puzzled as to the nature of their complaint. I again saw them on the following day, and was then informed that mercurial ointment had been applied to their skin for the destruction of the warble-maggot. Naturally I looked for any evil consequences that might arise therefrom, when I found every symptom of excess of mercury in the system; the cattle would not feed, there was a continuous flow of saliva from the mouth, the gums were soft and spongy, and all the teeth were very loose. These symptoms lasted several days, when they gradually improved, commenced to feed, etc., except in one instance; this beast became perfectly prostrated, and either would or could not rise, and as he appeared to be getting worse I thought it advisable to have him slaughtered.

The remainder of the herd I had washed with an alkaline solution containing Pot. carb. and *sapo mollis*, to remove, as far as possible, the ointment that still adhered to the skin, and after about ten days they all appeared to be in their usual health. Several of the cattle appeared to suffer in a lesser degree, and the ones that suffered most had a very large number of warbles and the mercurial ointment had been applied a second time.

Several letters passed between Miss Ormerod and myself on the subject. I also sent her a sample of the ointment used, which she placed in the hands of one of our leading veterinary surgeons, who informed her that it was ordinary mercurial ointment, and that the teeth of cattle were always loose, a fact, I presume, with which most of us are acquainted. I have never tasted mercurial ointment, but have an idea that it is rather sweet, and my notion is that the cattle licked off some of the ointment, which will partly explain why they suffered from an excess of it.

Thanking you very much for the attention you have paid to these few disjointed remarks, trusting that your time has not been quite wasted, and please kindly remember that it was written by a hard-working country practitioner who has very little time or inclination for writing.

The PRESIDENT remarked that the study of helminthology was one of the

greatest interest, and no branch of it was more so than that with which the essayist had been so ably dealing. In no other profession were there so varied or so many subjects requiring the attention of the student as in that of our own profession. He trusted we should have a good discussion.

Mr. HEATH said that death only followed attacks of warble-maggot in cases where the ignorant use of dangerous remedies was resorted to. If the larvæ were allowed to develop of their own accord no harm would happen to the general health of the bearer. He would not like to back up Miss Ormerod's opinion in recommending the application of mercury to the backs of cattle. He generally employed turpentine for the destruction of the warble, and with success. He had known several horses die from the presence of the larvæ of "*Æstrus equi*" in the stomach and duodenum : balsam of sulphur, he believed, was the best agent for their destruction. He had attended a cow with a very large abscess on the back and side, which was the result of the irritation of the warble-maggot.

Mr. PENHALE, jun., thought the "*Æstrus bovis*" a great pest to cattle all through the hot summer months. Cattle had a great dread of the fly, either from instinct or the memory of pain produced by the punctures of the female to deposit the ova ; in this way they were constantly driven scouring over the pastures seeking either shade or water, where the fly will not follow. The frequent results of this violent exercise were abortion, colds, Pneumonia, and still more often of Mammitis, by standing in cool places after being in such a very heated condition. He believed the fly caused a greater loss to stock-owners in this way than it did by any injuries produced in the skin or flesh. He therefore thought their efforts should be directed to prevent the æstrus attacking cattle during the summer season. He regarded mercurial ointment as a very unsafe remedy to apply to the backs of cattle. He had frequently seen cases of salivation and Paralysis as a result, when it had been used by injudicious persons as a cure for Ringworms. He was of opinion that it entered the system both by licking and absorption. Young cattle suffered severely from the irritation of the maggot in the early spring months, and once he attended a young heifer which was condemned for Symptomatic Anthrax, the atmosphere having gained entrance through the warble, producing the characteristic crepilis of that disease. Fortunately it was not destroyed, and in a few days made a good recovery.

Mr. BURTON said he had found a mixture of Zinci sulph., ol. tereb., plumbi acet., and tr. benzoin very destructive to the warble-maggot, when applied to the backs of animals infested with them.

He believed the flesh was very much injured, as well as the skin, owing to the constant irritation of the maggot, and by the animal violently licking itself to allay the itching. He had found from experience with horses, that it was necessary to dress the skin daily in order to prevent flies attacking them. He used a weak solution of carbolic acid, which was perfectly successful for the purpose.

Mr. PARSONS had no doubt but that the hides and beef of cattle were much injured by the warble-maggots, and he believed the animals were not unfrequently inoculated with septic germs by the æstria. He was not inclined to throw so much blame on Miss Ormerod for her suggestion, although he would not recommend the application of mercury to the backs of animals himself. He thought the salivation arose in the cases alluded to by Mr. Olver from using an excessive quantity of the ointment, and turning the animals out in the wet weather which was then prevailing.

Mr. ELDER said numerous cases of chills, congested lungs, and Pneumonia arose from animals standing in cool, airy places after being chased by these flies. He thought persons in high places, whose opinions were looked up to and carried great weight, should be very careful not to recommend

dangerous remedies of which they had no practical experience, especially when comparatively harmless agents would attain the same end.

Mr. CHASE thought the subject which had been so ably treated by Mr. Olver a most important one. There could be no doubt but the parasite, besides being a source of great discomfort to cattle, also caused serious losses to the tanner and butcher. He was of opinion that it would be greatly to the farmer's benefit to take some precautions to prevent the ova being deposited in the skin.

Mr. PARSONS proposed a hearty vote of thanks to Mr. Olver for his very instructive and interesting paper. It was a subject a little out of the beaten path of papers usually read at such meetings, but was all the more valuable on that account.

Mr. CHASE seconded.

Mr. OLVER said he was grateful for the way in which his paper had been received by the Association. The subject was one of growing interest and importance to the agriculturalist, and was daily drawing more attention because of the serious loss to the hide.

It was resolved that the next meeting should be held in Exeter, on March 12th, 1886.

Mr. OLVER proposed, and Mr. BURTON seconded, a vote of thanks to the Chairman for so ably presiding on that occasion.

After the meeting, the members of the Association were entertained to an excellent dinner by the President; the usual loyal and professional toasts were proposed and duly responded to, and a most enjoyable evening spent.

W. PENHALE, *Hon. Sec.*

LINCOLNSHIRE VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of the members of this Society was held on September 30th, at the White Hart Hotel, Spalding.

The President, R. T. Hardy, Esq., took the chair.

The SECRETARY read a letter from the Secretary of the Royal College of Veterinary Surgeons, acknowledging the receipt of this Society's letter, containing a copy of the resolution passed at the last meeting, as to the Election of Council.

Mr. MACKINDER proposed that the next meeting be held at Lincoln, and the motion was unanimously adopted.

Professor WILLIAMS then delivered his address on

PRACTICAL REMARKS ON THE DIAGNOSIS OF SOME OBSCURE DISEASES.

Professor WILLIAMS said he had no paper to read, and he had been anxious that they should select a subject for him, so that he might have prepared one. He would, therefore, simply make a few practical observations upon some puzzling cases which had come under his own notice. He knew he was speaking to practical men, and although some might say they had seen such cases as he would mention before, his remarks might be of some assistance to some members, and if so he should be rewarded for any trouble he had taken in the matter. (Hear, hear.) To begin with, an animal might be suffering from a disease, and it was difficult to make out what it was. Let them take the case of a horse which was gradually losing flesh, and which ate not so much as usual, but moderately well. It had a capricious appetite, eating more to-day than to-morrow, and all the time the gradual loss of strength went on. The functions of the body seemed to be performed pretty well, and there was no indication of liver disease. The urine was its natural colour, with no tinge of bile; the proper quantity was regularly passed, and

the passage seemed to give no pain. The skin was not very tight upon the body, and there was no cough in a non-complicated case. If they took the animal's pulse they would find forty-five or fifty, or perhaps the natural pulse, but more or less debilitated according to the stage of the disease. If they examined the chest, heart, or lungs, they would find them all right—quite normal—and they would conclude there was nothing at all the matter with him. On looking at the digestive organs they would find the mouth clean, and no disease of the stomach particularly. One veterinary surgeon would say he was suffering from so-and-so, and another would say from so-and-so, and there they had a great difference of opinion. The horse would gradually become unable to work, fall off in condition, especially in the loins and back, without any indication of the vital organs being at fault, and it therefore became a very difficult matter to deal with. He had met with such cases repeatedly. At first the evidence was negative only. Many years ago he came to the conclusion that the cases arose from disease of the spleen. He found that was an accurate guess, because when the organs ceased to perform their functions they had indications of the disease in the yellowness of the urine. In the absence of active symptoms he came to the negative conclusion that the spleen must be the seat of the disease, and he found it was so. By more careful examination and observation of the case they would arrive at positive evidence, and then the symptom he had mentioned became a very important one. Physiologists told them that the spleen was concerned in the elaboration of blood, and if they bore that in mind it would help them in considering the symptoms of the case. In some cases the tumours were enormously increased, and the lymph and glandular tissues were sometimes an enormous size. He had seen them 100lbs. in weight, without any enlargement of the belly, and when the *post-mortem* had revealed a spleen of that weight, all sorts of notions had been given as to the nature of the disease. In order to ascertain its nature, he could recommend to them as the result of his own practical experience, the daily examination of a drop of blood extracted from any part of the body, and they would find a positive symptom that the spleen was in a condition of disease, having the appearance of a large agglomeration of whitish tumours. Some of them were small and others large, but they were all hard and tough, and not dissimilar to a tendon when cut across, with streaks here and there of a crystal appearance. It was an incurable disease—the horse always died—and it was useless for a veterinary surgeon to attempt any system of treatment, because it would be unjust to the proprietor of the horse. The disease was fatal in its nature, and sometimes it was very prolonged and sometimes very rapid. He had known it to kill in two months, and in other cases he had known it to go on for more than a year before terminating fatally. They might find a horse with an enlarged gland protruding into the front of the shoulder, go on working for years in that condition, but when it began to lose flesh and appetite, they could depend upon it (he spoke from long experience and close observation) that this tissue was growing in the spleen, and that the horse was in a state of Lymphadenoma. One of the symptoms of the advanced stage was the horse wanting to rest on the manger with his mouth open. He would grasp the iron manger, and if in a loose box he would turn round and grasp the top of it, remaining there for a long time. That seemed to cool him, and there was no doubt that the spleen became so hard that it produced congestion of the stomach, and cooling his mouth gave him relief. The disease was very interesting, and it affected cattle, dogs, and human beings. He had seen it in cattle repeatedly, but there they had the indication without the tendency to undergo degeneration. It never went beyond the cellular state, because as soon as it was developed it commenced to wither. That was Lymphadenoma, and it was so well marked that he had

seen the tumours extend from the muscles of the neck and grow to an enormous extent. If a veterinary surgeon treated a cow which had a tumour of that kind, he would remove it, and then if he put it under his microscope he would find it consisted of connective tissue of such a nature that the sooner the cow was made into beef the better, supposing it was fit for food. He has seen tumours weighing from 7 lbs. to 14 lbs. removed from cows. He had seen the disease in the human being, and he had skeletons showing it in his possession at the present time. Some time ago Professor Stewart, of Edinburgh, asked him to go and see a woman, about fifty years of age, who was bitten by a horse on the point of her finger some years ago. The finger was amputated, and since that time small tumours had grown upon her. He went to see her, and found tumours all over her body, and he expressed his opinion that it was a case of Lymphadenoma. The woman died a fortnight after, and the condition of her body after death supported his opinion. Some time ago he was asked to attend a mare and remove a tumour which interfered with the act of deglutition. He found an immense tumour on the head, running in various directions, and he said he could not remove it, the roots were so strong and deep. He ascertained that the mare had been losing flesh, but that she had previously swallowed well. He was prevailed upon to remove the tumour, and he found it weighed about four pounds. The same night the veterinary surgeon who was attending the mare sent a small bottle of carbolic acid, with an order that it was to be mixed with oil, and applied to the wound which had been made by the operation. They did not mix it with the oil, but injected the pure carbolic acid, and the result was there was such an immense swelling that the mare died from suffocation. He found a spleen weighing seventy-five lbs. By careful investigation and a daily examination of the blood of the animal, they would find an indication that would be a positive sign to them of the disease. It might be supposed that it was the result of poisoning in pharmacy, but he felt sure from what he had seen, that the condition was a simple and accidental complication. Young horses were also subject to the disease, and he remembered a case where a valuable young horse, worth about £85, had a rather inflamed tumour near the jaw. He was blistered once or twice, and then he was taken to his (Prof. Williams's) place in a rather emaciated condition. The tumour was very hard, but when the age of the horse was taken into consideration, it was a very feasible conclusion that it was only a case of strangles. He soon saw indications, however, which proved to him that it was Lymphadenoma, and after the horse had been under his care several weeks it died with an immensely large spleen, weighing 60 lbs. or 70 lbs. The disease commenced with a cough and cold, and an enlargement of the glands. The horse had been perfectly well before, and ten weeks did not elapse from the time the horse was first taken ill to its death. He had no hesitation whatever in saying what was the condition of the horse. There was a general stiffness about it, he would rest his teeth for hours together upon the manger, and lie on his belly, and all those things indicated Lymphadenoma. The next disease he would mention was one ably described by Professor Varnell in 1869, and afterwards re-produced in his (Professor Williams') works. The disease was met with to a considerable extent, and especially amongst foreign horses, but it often differed very much. They would find one side of the horse's face bulging a great deal, but that only came as last symptom of all. The animal would be excessively lame and in a few days they would find the hock enlarged and the extremities very painful. They might say it was a case of rheumatism, but it differed from rheumatism in this particular: that the tendons were not affected, and the disease was limited from the inflamed joint to a swelling in the hock and fetlock, but the tendons did not participate in the enlargement. Still they would find the disease flying about the body,

like rheumatism, and the horse would become deformed. The horse would have an emaciated appearance, but in chronic rheumatism it would look pretty well. When the face began to swell, there could be no doubt of the presence of the disease, and the probabilities were that the case would terminate fatally. A horse was sent to him for the extraction of a tooth ; he did not like the look of the horse at all, and after extracting the tooth, which was diseased and full of pus, he removed the skin and found the bone was very soft and porous. At first he concluded it was the effects of a long continuance of a diseased tooth, but after it was taken out the horse never got up again. It was a case of broken back, and the *post-mortem* of the body showed that the horse was in a state of Osteoporosis. If he had been more careful in his first examination of the horse, he would not have performed the operation at all. There was no enlargement of the face in that case, but Professor Varnell had laid great stress on that symptom, but they might meet with many cases with no enlargement at all. He remembered a case of a pony which was very lame in the hock ; he was blistered and medicine administered to him ; when the shoe was taken off, there was no indication of any injury and the hock appeared better, but in two hours he was dead lame in both feet, and also in one of the hind feet. The pony was unable to stand, and they had to destroy him. The *post-mortem* revealed the fact that 24 ribs were affected, and the bones were so fragile that 24 of them were fractured. In that case there was scarcely any indication at all of Osteoporosis, and although there was a slight bulging of the face it was one of the last symptoms. The disease was almost as incurable as Lymphadenoma, but he thought it might be prevented to a certain extent. In the cases in which the history of the disease could be traced, he had found they had terminated fatally when there was a deficiency of rain water or lime salt. With regard to the hind leg lameness, he had often heard it said that the difference between a veterinary surgeon and Sir William Gull or Sir William Jenner, was that a veterinary surgeon if consulted upon a hind leg lameness would give his opinion, and not only stick to it but swear he was right. Another veterinary surgeon would examine the same horse, give a contrary opinion, and also swear he was right ; but if a patient consulted Sir William Gull as to what was the matter with him, and the former did not know he would say so, which was much better than giving a haphazard opinion, as some veterinary surgeons did at the present time. Referring to the difference between hock lameness and hip lameness, Professor Williams said there might be a wasting of one side of the body, and when horses had been in slings he had treated the muscles of the quarter and hip, and in the course of six weeks he had found a great spavin. In hock lameness, where a spavin had been developed, if they noticed carefully, they would find it was confined to one side of the horse, which they could clearly see if they stood behind it and compared the two sides. They would find the lame side was thinner than the other, and there was a flatness about it, whereas in hip lameness there might be a flatness, but there would also be a wasting of the buttock. Purely hip-joint disease was a very rare thing, but it did occur and was very difficult to deal with, being so deeply situated. The wasting he had referred to was brought under his notice many years ago, and it not only extended to the hip-joint, but also to the buttock. Having made those remarks on the obscure diseases of Lymphadenoma and Osteoporosis he begged to thank them for their patient hearing. (Applause.)

The Professor's interesting address was listened to with the greatest attention and interest, and a vote of thanks unanimously carried. The members afterwards dined together.

CHARLES HARTLEY,
Hon. Sec.

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE concluding quarterly meeting for the year was held at the Queen's Hotel, Leeds, on October 30th; the President, Mr. J. E. Scriven, in the chair.

Mr. GREAVES made a few remarks explaining the action of the Council with regard to Clause IX. of the Supplementary Charter.

Mr. W. G. SCHOFIELD was unanimously elected a life member of the National Veterinary Benevolent Society.

Mr. GREENHALGH nominated Mr. Samuel Chambers, Kirkheaton. Mr. SMITH nominated Mr. John Alexander Hodgman, Barnsley.

Mr. J. H. FERGUSON resigned the office of Hon. Treasurer, and also as a member of the Society.

Mr. PARLANE WALKER exhibited and described a number of new obstetric instruments which he intended to submit to the notice of the profession. The hooks, crutch, forceps, etc., were considered to be a great improvement upon the old instruments at present used by the veterinary surgeon.

Mr. T. FLETCHER also exhibited instruments of an improved character.

A long and animated discussion upon mechanical assistance in parturition ensued, in which Messrs. Smith, J. Carter, Deighton, Axe, Greaves, Schofield, Toop, Pickering, Walker, and Fletcher, and other gentlemen joined.

Mr. LODGE described the symptoms, of an occult character, attacking five cattle fatally out of a herd of seven. The majority of the members were of opinion that the disease was Rabies.

Mr. BRIGGS gave the symptoms of a singular case of Hysteria in a mare.

The SECRETARY presented the annual financial statement, showing £54 13s. 10d. to the credit of the Society.

Mr. ANDERTON proposed, and Mr. GREAVES seconded, that Mr. Benjamin Smith, Barnsley, be elected the President for 1886. Carried unanimously.

Messrs. Scriven, Fletcher, and Bell were elected Vice-Presidents. The Hon. Sec. was re-elected.

Mr. CARTER moved, and Mr. SMITH seconded, a vote of thanks to the President, Mr. Scriven, for his efficient conduct in the chair during the year. Carried unanimously.

Mr. SCRIVEN returned thanks.

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

THE usual quarterly meeting of this Society was held in the London Hotel, Edinburgh, on August 26th, Mr. Hutton, of Kelso, in the chair.

Mr. Barclay, Dunfermline, was elected a member of the society.

It was decided that the hour of meeting should in future be three o'clock instead of two.

Mr. CUNNINGHAM, of Slateford, read the following paper on Bowel Diseases.

A FEW DUST-BALL AND BOWEL CASES--WITH REMARKS.

Mr. President and Gentlemen: I have to give you, as arranged, Notes of Cases not entered on at last meeting, and to these I have added (before and after) a few remarks.

Disease of the Digestive Organs, Bowel Disease, has an interesting—not altogether unpleasing—yet somewhat dread sound in a veterinary surgeon's ear. A list of these diseases brings up, it may be, a long, full, and

rather grim array of cases—old friends and old foes,—the scenes and subjects of many successes, and not a few failures ; of many losses and many wins.

Looking back on the last five-and-twenty years, I think I speak the experience of many practitioners when I state my own,—that I have seen more valuable, high-priced, young and middle-aged horses die from stomach and bowel affections, than from all, or almost all, other diseases put together. In importance the subject is second to none. Bowel Disease certainly is not so common as it once was. The days of the boiler and so-called boiled barley that would almost grow again, are shortened. Still the occurrence every now and again of severe, often fatal cases ; the loss of some valuable stallion, or mare, or cart or farm horse ; to say nothing of the array of Dust-balls and other concretions before us, amply testify to its claims to our very earnest attention.

The causes of Bowel Disease are known to you all ; bad feeding, over feeding, under feeding, chills, cold water, kindness, carelessness, all contribute their quota. And when we consider the long hours, the long fasts, the large feeds, the oft changing of fodder, the careful leading to pond or watering-trough at all times and seasons ; or, on the other hand, the days in the stable, the full manger and rack, and the want of exercise ; when we call to mind the smallness of a horse's stomach, the length and winding and coiling course of the small intestines ; the defined position and varying calibre and size of the larger bowels, and the great vascularity, and extreme delicacy and sensibility of the whole alimentary tract ; when we know that a partial check to digestion means colic and pain ; twist or displacement—unless relieved, strangulation and death ; that impaction cannot long exist, and that failure and rupture are certainly fatal ;—when, I say, we know and consider these things, we are surprised not that colic and such-like occasionally occur, but that they are of such comparatively rare occurrence as they now fortunately are. Colic cases are crotchety in occurrence ; now a few, then a considerable number all at once. We have all, I daresay, observed that a very warm, or a very wet and cold day, or any sudden change of weather, does occasionally—I do not say always—produce as quick and good a crop of colic cases as improper feeding or watering. I think we are a little prone to forget that any extrinsic cause that lowers the vitality, and impairs the energy, and takes away the strength and power of the bowels to do their work, renders them as liable to derangement or disease as any deleterious matter that may be lodged in them.

The cases which absence prevented my bringing forward at last meeting were simply three or four of Dust-ball, two or three of Rupture of the Rectum, and three of recovery from apparent Enteritis. To each of these allow a word.

DUST-BALL.—In connection with this subject, a glance at the process of corn-dressing and milling may be interesting.

Corn or oats in a miller's eyes—at least a Scotch miller's eyes—consist of three parts : the “groat,” or oat proper, the outer shell, husk or “seeds,” and the filmy dust or oat-hair interposed between them. The miller's object is to separate these three subjects from each other—his business, to make the most of them as feeding stuffs. Lying on the wire floor of the kiln for three or four hours and stirred occasionally, exposed to a good moderate heat, the moisture is driven off, the grain becomes crisp and dry, and is sent down a shoot to bags or benches to cool for twenty-four hours. Elevated to the top of the mill, it is then passed, first under a millstone, then through a perforated-wire cylinder, with revolving shaft and blades, and thirdly the fanners. The mill-stone, set “wide,” by a peculiar action raises the oats on end, and gently cracks them, setting groats, dust, and “seeds” at liberty, but mixed with each other. In the cylinder the fine light corn-dust is forced by the revolving blades through the perforated-wire, and

collects in a chamber by itself, while, a little further on, the fanners blow the "seeds" into another corner. After one or two repetitions of this process, the groats are at length ground, or "cut" as it is called, by the mill-stone proper. The rough meal descends, falls on an oscillating screen or sieve, that passing through being meal fit for market ; while of that which remains, the "un-cut" grain, finds its way again to the stone, while the light, dusty, seedy portion is blown off, by small cylinder and fanners, as "fine meal seeds." The products then are, meal, fine meal seeds, corn-dust, and rough seeds ; and the latter, ground in other mills, gives the fine, yellow, light powder, the beautiful "rinderpest," or "husk-meal," which sets so many mills on fire, and adulterates everything, from the delicacies of the banquet and the oil-cake mill, to the coarse meal of the pigstye.

From this rough sketch of the process we learn that (1) with careful preparation the four products should be quite distinct and free from each other, and *vice versa*. No dust-ball in a Scotchman fed on good oatmeal, whatever may be the fate of his horses ; and on the other hand, fairly-bruised or crushed oats may from bad management contain a good deal of "dust." (2) That fine meal seeds given off near the end of the process are valuable, while even the dust and seeds may, from careful preparation, have fair feeding qualities, and well soaked and mashed may, in hard times, be of service with cattle and pigs, in which, singularly enough, dust-balls rarely if ever occur. (3) What we all know and should never forget—that oats, if bruised at all, should be simply flattened and split by rollers with all their natural moisture in them. And (4), what at present is of most consequence to us, that if a horse is fed on oats—especially "kiln-dried oats"—bruised by a mill-stone or even rollers, he is just receiving the dust or oat-hair in a form most favourable for the development of a ball ; and from such bruised oats, as we shall presently see, very large dust-balls have, in the course of years, formed.

As in the formation of a "hair-ball," the calf's stomach moulds and shapes, and lays the hairs together in beautifully regular hard-packed order, so, the action of the horse's bowel deposits the filmy light oat-hair or dust on a small piece of stone or a nail, or some such substance, and by gradual addition and accumulation and pressure, lays the foundation for a dust-ball, requiring only time and material to attain the size of those before us. Soaked in the fluids and juices of the stomach and bowels, charged to the full with phosphates and other salts, much of these gradually become deposited on the forming dust-ball, and show through its substance ultimately, as stony-looking envelopes or layers. If the horse is fed on dust, and has poor feeding, the ball forms rapidly ; phosphatic layers have little time to form, and the materials for them are scanty. If, on the other hand, the oat-hair or dust is small in quantity, and the feeding rich, the dust columns are slender, and the ball assumes the appearance, and has almost the weight of a calculus.

Dust-balls of the size of fair-sized oranges in about two months, is about the most rapid formation I have been able to trace. Given a rough round nucleus, we will probably have a more or less round ball ; while with a flat or irregular-shaped centre, the triangular or hollow flattened shape may, for a time at least, predominate.

The great moulder of the shape of the ball is, however, the bowel itself. How like some dung-balls, without any nucleus, are to dust-balls. The lobulated or kidney-shape arises, I think, from an inherent tendency which some balls have to assume this shape—like salts crystallizing—aided by the rough hay or straw faeces getting fixed in the interstices or clefts, preventing deposition in these clefts while it is going on on the surface.

Case I.—A very large dust-ball, 13½lbs. in weight when fresh, rounded, and

egg-shaped, measuring 11 inches in long diameter by 8 inches across, composed of alternate layers of dust and phosphatic deposit, evidently a very old ball, having formed, as it were, in stages or at different times. This ball was removed after death from a farm mare twenty-one years old. From Argyleshire originally, bought at four years old at a low figure,—she was one of those blessings to farmers which in these hard times they so much need. She rapidly proved herself to be double or treble her price, and for eighteen years did her work, and could do it almost to the last as well as the youngest and freshest horse in the stable, being all the time in good health, and scarcely ever sick or sorry. Cold occasionally and a bad quittor, were all the ailments I ever knew her to have. No colic attacks.

She was taken ill for the first time on 26th January last. Received a common colic drench and was relieved. Seized a couple of days after. Constipation for twenty-four hours or so, and got better. During the next eighteen days she had two similar attacks with the same result. The symptoms were simply the ordinary ones. No greatly-accelerated pulse nor fast breathing, not much pain; no sitting on haunches, nor pressing tail against stall. Very quiet, standing quietly, and lying down slowly and cautiously, and when down apparently half asleep. On the 13th February I saw her in the forenoon apparently well, and about nine in the evening was called to see her dying. Quiet to the last, she would lower her head slowly to the ground, and fall with her legs doubled under her. Bowel was evidently ruptured.

I was a little late in getting to the knacker's yard next day, and found the man with the ball in his hand gazing with surprise and admiration at it. Balls he and I had seen, but this was evidently the largest one. The ball had been lodged in the colon, between its commencement in the right iliac region and the sigmoid flexure in the left, rupture having taken place about midway. The case seems to show that this situation is very favourable for the development of a large ball, and that here it causes little inconvenience.

The farm steward informs me that the feeding of the horses on the farm from so long as he can remember has not been changed—bruised oats and bran, with hay in winter, and grass or tares in summer.

Case II.—Also a large ball, 9 lbs. in weight when removed; round, hard, stony-looking exterior, with convoluted appearance, somewhat like that of a brain. Evidently of old standing and formation. Dust inside, phosphatic layers externally.

This ball was got from a Belgian mare, thirteen years old, nine years on same farm. A very healthy good mare, only one attack of colic remembered, though a little subject to weed. She became ill on the 21st December, 1882; died 20th Feb., 1883—two months, during which she had repeated and severe attacks of constipation, with symptoms almost exactly the same as No. I. Ill for three or four days, relief for seven or ten, and so on. At the end rupture and ball at the common place, viz., the terminal funnel-shaped ending of the colon in the rectum. The farm griever tells me that some years before, the feeding during some months was bruised foreign oats mixed with the home-grown oats not bruised, and that this had such a bad effect on the horses that it had to be discontinued. The common feeding of the farm is good oats, generally given whole twice a day in winter with boiled potatoes, and turnips at night and hay; corn with grass or tares in summer, nothing else.

I have met with two or three cases of dust-ball among Belgian horses, and their comparative fewness in numbers raises the question: Are Belgian horses subject from the feeding they get in their native country to Dust-Ball? Was the process begun when this mare was bought at four years old? or were the foreign bad bruised oats the cause? And being discontinued no more accumulation of dust took place, but simply phosphatic deposit from the rich feeding?

Case III.—A ball of considerable size and age, 5 lbs. weight when removed. Dust and phosphate deposit about equal. Subject—a big brown Clydesdale horse, fifteen years old, eight or nine years on farm, occasionally in local show ring. Passed a small dust once before. Became ill 11th November last. Quiet, but with nasty symptoms. Anxious, haggard, worn-out look. Slight abdominal fulness, pulse high, breathing not much affected, mouth offensive. Scarcely ever down. Next day tail symptom developed to perfection, all round the walls of loose-box were the marks of his rubbing. He would back quietly up to the wall, find a corner and then go rubbing round with his tail and haunches firm against the wall and his head and fore feet towards centre of box. At other times he would stand quietly in the middle of the box, and then take a quick sudden run backwards till his tail and hind end were brought with considerable force against the wall and then go rubbing round as before. He lasted two days, rupture and ball at same place as No. II. Imperfectly cleaned and dirty seeds from one of the mills given each winter with the boiled food, was the evident cause of the ball, together with possibly sandy matter from the cut straw given as fodder.

Case IV.—Lobulated ball, four inches or so in diameter, almost entirely composed of dust. History of case not so well remembered, but for seven weeks this horse had alternate intervals of ease and three or four days of illness. No sitting on haunches, no rubbing of tail. Symptoms like Nos. I. and II.

These cases, gentlemen, have some features in common; others diverse. The subjects were farm horses, on good farms; old horses, never off the farm. Under the same stewards and servants' eyes, and with myself as the veterinary surgeon in attendance. Feeding and symptoms partly alike and partly different. From them I think we may learn—1. That from ordinary farm oats, but more especially from foreign oats, bruised in the ordinary way, dust-balls, like those before you, have been formed, and that one horse may be affected while a dozen in the same stable and on the same feeding for years, may, singularly enough, apparently at least, escape. 2. That while near the junction of the colon and rectum is the common position for dust-ball, yet at the beginning of the colon and anterior to the sigmoid flexure in the widely distended portion forming a half circle on the floor of the abdomen, greater facility is given for the formation of a large ball, and that in this position it appears to give less inconvenience. 3. That, though in some cases the ball may be felt and even removed if fixed in the rectum, still in the cases before us repeated and careful examinations, per rectum, failed in every case to detect even the semblance of the balls. 4. That there is no distinctly characteristic symptom for Dust-ball, the tail symptom, and sitting on the haunches, not being invariably, and from my own experience, not very often present. The quietness, absence of acute symptoms, or any other apparent cause, the recurrent attacks, relieved by medicine, ending generally, at last, by quick, sudden death symptoms from rupture of the bowel are mostly all that are to be depended on. 5. That Dust-ball cases are not readily injured by large doses of purgative medicine, contrasting strongly in this way with cases of Hæmorrhagic Inflammation of the Bowels. When tired out attending, No. II. and No. IV. cases especially, I have given large, even excessive doses of aloes, oil and calomel, combined with opiates, and the result, often to my surprise, was not hurtful but beneficial, often giving relief for a very considerable time. The large *solid* stools which some of these horses occasionally passed requiring to be seen to be believed in—six, or eight, or nine large, fresh, hard stools, lying in the box, in a morning, of a horse that has passed nothing-for days, and has as much physic in him as would do for half a dozen—takes one by surprise. 6. We may learn to avoid bad

oats and badly bruised oats. Give fresh corn whole or crushed by rollers only.

On the cases of Rupture of the Rectum we have not time to enter. One was a Belgian gelding recently over, ruptured about two yards from anus by two pretty large balls. Another was a young valuable farm horse found dead one morning. Rectum ruptured one yard from anus by three small balls. Another horse, on same farm, was ill for about a day and a night shortly afterwards; the prominent symptom in his case being long-continued and persistently lying on his back with legs doubled on his belly. The passing of two small balls saved him. Another case of Rupture of Rectum I saw last summer, and another last Thursday—very singular out-of-the-way cases. No very alarming or very uncommon symptoms during life, but *post-mortem* examination in the one case disclosed adhesions of several days' standing between a part of the colon, the rectum, and the bladder, both rectum and bladder being ruptured; and in the other case, the colon displaced considerably, the omentum lacerated and turned round part of the bowel, and almost black from distension and strangulation; adhesions with flakes of yellow, solid lymph, interposed between parts of the small intestines and rectum, the latter fearfully inflamed and ruptured near its beginning, sufficiently to admit one's two hands. And this horse lived from Sunday to Thursday morning, very quietly, making little to do; no sweatings or shiverings, nor other such signs.

On the cases of recovery from apparent Enteritis, just one word. With the dread symptoms of this disorder we are all too familiar. When fairly established it generally means death. Suffice it to say, that the anxious, haggard look, the running-down pulse, the snorting, see-saw breathing, equal in inspiration and expiration, the rapid weakness, the inability to stand or even to lie, the full abdomen, patchy sweatings, etc., etc., were all present. One even on recovery passed a large hæmorrhagic mass, and his fæces had the usual dirty-red colour for a considerable time afterwards, and yet these cases did well. The only treatment adopted being a small quantity of really good linseed oil at first, combined with large doses of opium and belladonna, ranging from 3 drs. of powdered opium, 3, 4, or even 6 drs. of belladonna, given with no very measured hand, and repeated two or three times, and in one case a dram of calomel thrown on the tongue. One of the horses was bathed throughout the night, the others were simply severely rubbed with strong mustard all over the abdomen. Smoke injections. A warm comfortable box and fluid food for days afterwards: nothing else.

And now in closing. What is this inflammation—this hæmorrhagic inflammation of the bowels? A favourite cob or mare has been working hard, he is laid off lame, and your man is very kind to him, and at night you are suddenly summoned to find the cob that has carried you so long, and which you know has never had a touch of colic in its life, posting on in two short hours to its end. A farmer buys a horse young and cheap in poor condition; he is good to it, it does well and thrives. He is proud of his bargain, and suddenly on the road it takes ill, and in a couple of hours you tell him to prepare for the worst, for though his horse may live till the morning it will certainly die. A horse passes your place with his load at 9 o'clock in the morning, goes three miles—is seized, returns, and by 12 o'clock lies a carcase in your box, after a few hours of ceaseless agony. This is worse than cholera? What is this disease? You examine the carcase and find the veins superficial and deep, filled with black, tarry-fluid-looking blood; the abdomen quarter full of thin, watery, dark purple or rusty-coloured serum; the stomach and bowels with considerable contents, but not more than many a healthy horse in full feeding. The mucous membrane of stomach congested and its villous portion inflamed and eroded,

the secretions sour and acid, the small intestines congested and inflamed, and their contents acrid and high coloured. Rectum not much amiss, but the cæcum and colon tell another tale. Purple-looking, black and dirty-coloured inside, thickened and swollen to half an inch or an inch in thickness, with contents partly solid and partly fluid and purple-coloured, we find in them the true seat of this hæmorrhagic inflammation. Take a piece of healthy large intestine, examine it carefully, and you find it is about the eighth of an inch thick, the muscular and peritoneal coats are firmly attached, and adherent to each other, while the internal mucous is loosely attached by cellular tissue to the muscular, with a considerable amount of fat interposed, forming a sort of cushion or bed, in which the lacteals and blood-vessels may lie and ramify. All the three coats are pale and destitute of high colouring.

Take an inflamed piece of large intestine ; dissect it carefully ; you find a quarter or half an inch or even one inch in thickness, firm and dense, and almost hard to the feel. The peritoneal and muscular coats still adhere closely, but they are thickened, and swollen, and soaked with effusion. Still they do not seem to be acutely or actively inflamed. The mucous coat is black or dark-purple coloured, the seat of most intense and evidently acute inflammation (or it may be passive congestion), but not much thickened ; its inner lining is black and dirty-coloured, studded with minute openings, while the space between the mucous and muscular layers is filled and gorged and swelled with effusion, the chief cause by far of the increased thickness of the bowel, and this effusion is clear, not dark-coloured at all. While in the peritoneal folds connecting the divisions of the gut, lymph watery but clear, and amber-coloured, as from a Pleuro-pneumonia lung, may in abundance be found.

If this is simple acute inflammation, and nothing else, where in the animal economy have we another example of such rapid, fatal, and extraordinary results in the space of a few hours from simple, pure, acute inflammation, and nothing else ?

Is it due simply and solely to the presence and mechanical irritation produced by large quantities of indigested material in the organs ? Then, surely, a horse with a thirteen-pound dust-ball, or one packed with fodder beside, should be its readiest victim. But we know that such is not the case. Is embolism the cause ? I believe, in one or two instances, one might be justified in saying so. Is it Anthrax ? I do not think the lesions justify that conclusion. Is twist or displacement the key to the mystery ? I believe in some this does supply the key, and that some of the so-called cases of inflamed bowels are simply cases of twist or displacement ; but, on the other hand, of the many cases I have examined after death, only in a few, comparatively, have I been able to trace any distinct twist into-susception or strangulation.

A horse stands on a wet day idle in his stall, eating wet grass, and goes down at night with inflamed bowels. Another, in similar circumstances, takes a severe "weed." Is "weed" plain, simple inflammation of the tissues of the leg ? We know its exudatory capabilities. Have we such a thing as Lymphangitis of the Bowel ? The colon and the cæcum lie on the floor of the abdomen, they are the most dependent parts of the bowels ; farthest from the centre of circulation. Is Enteritis wholly or partly Lymphangitis of the Bowel ?

A riding-horse stands idle in his box for ten days, and his hay is not very good. His owner takes him out, and he gets him only a mile ; muscles of haunches and loins and thighs and almost all over body, all at once become hard and full-looking, and we know the premonitory symptoms of Azoturea. Rest, physic, and hand-rubbing save him. His owner is warned of the danger averted ; but he takes the horse home and lets him stand and feed

as before, and late at night, about ten days after, down goes the horse with so-called inflammation of the bowels; no saving this time. Have we here two diseases closely akin?—two sons of the same parents—and does “weed” make the triplet? From the second cervical vertebra, down along the spine, under the spine of the ileum, down to the sacro-sciatic ligament, on each side, I have traced the dark-bloody effusion of Azoturea. No one surely will say that this is simple inflammation only. Is the clear exudation of Enteritis found in abundance after three or four hours’ illness, in the substance of the bowel, and the dark-bloody discharge from its inner surface, plain, simple inflammation?

Into the matter we cannot further enter. My own opinion is that Enteritis is not plain simple Inflammation of the bowel; not caused solely by irritants in the organs, though aggravated by them; that it is not more plainly and simply inflammatory in its nature than weed or Azoturea, but that it is a specific disease brought on by causes somewhat similar to those diseases, striking the bowels as they strike the legs and loins, and developing itself suddenly, rapidly, and almost always fatally. As to treatment I have not much to advance. From its very nature when once fairly established, I believe recovery is very doubtful. Opiates? People say belladonna and opium counteract each other. I have not found this the case. I know of nothing better in this case. Avoid aloes as poison. An exudative disease, as I believe it, I depend now very much on mustard rubbed well and long on the surface of the belly. A good effusion there may ward off or mitigate the inward tendency. And it is rather singular that when Enteritis once sets fairly in, you can get no swelling on the surface of the belly by almost any means you can try.

But now, gentlemen, I must stop. Your patience is long since exhausted. Common cases these. “Much ado about nothing”—you will say. Is it nothing to the poor owner, whose cheque for £50 or £100 has suddenly become changed into a carcase worth 10s.? Is it nothing to the practitioner in attendance, powerless to help, feeling for the owner, the patient, and feeling for himself? Is it nothing to the poor animal with agony painted in every feature of his fast-sinking frame. Study those bowel diseases, gentlemen. Of all diseases, except Tetanus, they appear to be the most acutely painful. Let not our students and young practitioners sigh, because there are “no other worlds to conquer.” Within the four abdominal walls are secrets sufficient for the next generation at least. Do your best to prevent, cure, or alleviate abdominal disease. And if your reward comes not in the way you may desire, yet come it will.

Professor WALLEY then read the following notes on a case of

KIDNEY DISEASE.

The Kidney of a Pig.—Eight months old, with a darning needle lodged in its structure, sent by Mr. William Kirk, M.R.C.V.S. The needle occupied a horizontal position on one side of the kidney, and was embedded to a depth of about one-eighth of an inch. The tissues of the kidney in its immediate vicinity gave evidence of inflammation, but the covering of the organ did not appear to have been materially irritated. The needle was corroded, showing that it had been *in situ* for several weeks. The symptoms presented during life were colicky pains and partial loss of appetite. The needle had evidently been ingested by the animal with its food, and had passed through the walls of the stomach, and travelled thence to the kidney. Such an occurrence, though common in cattle, is very rare in the pig.

The meeting terminated with the usual vote of thanks.

T. HERBERT LEWIS, *Hon. Sec.*

NEW VETERINARY COLLEGE, EDINBURGH.

ON Wednesday, the 28th October, the session of the New Veterinary College, Leith Walk, was opened with an address by Professor A. N. M'Alpine, B.Sc. Lond., Professor of Botany. Professor Williams, Principal of the College, presided; and there were present, amongst others:—Mr. Borthwick, Kirkliston; Mr. Cunningham, Slateford; Mr. Malcolm Macgregor, S.S.C.; Colonel Milne, London; Mr. Henderson, manager of the Clydesdale Bank; Messrs. Aitken, Dalkeith; Revs. Mr. Ellis and Mr. Owen, of St. Paul's; Mr. Connachie, sen., and Mr. Connachie, jun., Selkirk; Mr. Boyd, Melrose; Mr. Dalling, Bathgate; Mr. Cartwright, Wolverhampton; Mr. Yardley, Bloxman; Mr. Durkie, Dundee; ex-Councillor Sloan, Edinburgh; Mr. Storie, East Linton; Mr W. Ballantyne, Captain Webb, Mr. Burnet, Maybole; Mr. Walker, Edinburgh; Messrs. Aitken, Edinburgh; Mr. Lawson, Mr. Adamson, India, etc. There was a crowded attendance of students, auguring for the College as successful a course as last year, when 170 students took the classes.

The PRINCIPAL said he never thought of the rapid progress of veterinary science and its teaching without being reminded of the solitary man (Mr. Dick) who, sixty-two years ago, for a year or two lectured to one student in Edinburgh; that was its commencement in Scotland. Now there were four colleges in the United Kingdom, teaching all the branches of veterinary science, all well equipped and well attended. Having referred to the controversy which went on for a time between the North and the South regarding veterinary science, he pointed to the entire change which had taken place—how Scotch and English colleges emulate each other. Among the compatriots of Mr. Dick was Mr. John Barlow, who did much for the practical aspect of the subject. Now an ardent disciple of Mr. Dick's is at the head of the London college, and English students are teaching in Scotch colleges.

Professor M'ALPINE then delivered an address on pastures, and made the following observations:—

As civilisation advances, the relations between different peoples and countries necessarily change, and this involves in a very high degree changes in the agricultural operations of a country. If the agriculturist does not adapt himself to the new relationships and conditions imposed upon him, he must in the long run be the loser, and the whole country will suffer. At the end of last century, for example, each country had to produce for itself all the necessaries of life, and the processes of agriculture were of a general kind, as yet not specialised. This state of affairs persists even now in remote country districts out of the reach of railways. Between 1830-40 the extensive introduction of railways, and consequent facility of transport, forced on extensive agricultural changes, and agriculture commenced its advance from the general to the special.

Let us take Switzerland as an example of what I mean. I purposely select Switzerland, because there the conditions of the case were such as to force rapidly along those changes which in our country have gone on more slowly, and are even now in course of accomplishment. Strive to evade them how we will, they are bound to come. Before the introduction of railways, Switzerland produced for itself all the necessaries of life; but the production of grain was very fickle on account of the moistness of its climate, although admirably adapted for the production of fodder and for stock rearing. In its neighbourhood lay countries, such as Hungary, admirably adapted for grain production. Thus, in this case, it is plain that the introduction of railways would rapidly and naturally lead to a diminution in the amount of grain production, and a corresponding increase in fodder and

stock production. Year after year the attention of the agriculturist would be more and more concentrated on the production of stock and the utilisation of the products yielded by the stock. In this way the agriculture of Switzerland became changed from the general to the special. Cheese production became the great speciality, and every one has heard of the famous Swiss cheese. Thus Switzerland commenced to export cheese ; the amount exported gradually increased, and the prices it brought in the market rose. In 1851 the amount of annual export was roughly 100,000 cwt. ; while in 1881, in the space of thirty years, the amount annually exported was quadrupled. In 1851 the best kinds were sold at about £2 10s. per cwt. ; while in 1881 the price had risen 50 per cent., to £3 15s. per cwt. The same changes occurred in the export of cattle ; the amount exported and the prices they brought gradually increased. Let us look now at the results, which followed from the diminished production of grain crop in Switzerland. One might at first suppose that the prices of grain would have increased, but that is not the case. As many countries are favourably situated for the production of grain, as facilities for transport increase, and freights become lower, the prices of grain also become less ; and such was the case in Switzerland. But this reduction in the prices of cereals, due to increased facilities of transport, is perhaps best seen by considering the prices in England. The prices of wheat per imperial quarter were roughly as follows :—1811-1820, £4 7s. ; 1821-1830, £2 19s. ; 1831-1840, £2 16s. ; 1841-1850, £2 13s. ; 1851-1860, £2 14s. ; 1861-1870, £2 11s. Thus it comes about that in those neighbourhoods where the production of grain crops was fickle, the attention of the agriculturists was directed more and more to the production of fodder and stock. That this is so is most plainly seen when we compare the different amounts of grass land at different periods. In the canton of Zurich the amounts were :—

	Acres under grass.	Acres of other cultivated land.	Total acreage.
1775	67,000	174,000	241,000
1840	116,000	125,000	249,000
1876	152,000	92,000	244,000

That the same change is going on in Britain is plainly seen from the following statistics :—In 1874 the amount of land devoted to the production of fodder was 20,579,000 acres, whereas in the space of seven years (in 1881) it had increased by one-and-a-quarter million acres. The amount of land under wheat has undergone a corresponding decrease. The amount of land under permanent pasture increased by more than three million acres in thirteen years, viz., from 1867-1880. It will then be seen that Britain, like Switzerland, is being forced to produce less grain and more fodder and stock, and in the future this change will require to be carried on to a much greater extent than now. Any artificial means which may be taken to retard this change must, in the long run, prove disadvantageous to our country. The history of Switzerland is apparently that which England has to go through.

Let us glance for an instance at the production of grain crops in America in order to see why we must have more fodder and less grain production in Britain. In North America, in 1863, thirteen million acres were under wheat. The number of acres gradually rose, and in 1880, in the space of seventeen years, the amount was almost trebled, reaching thirty-five million acres. In 1863, 174 million bushels of wheat were produced, and in 1880 the production had increased to 498 millions—that is to say, was almost trebled. Notice now the amount of wheat exported, for that is a very important point in my argument. In 1863 it was, roughly, thirteen million tons, while in 1880 it rose to forty million tons. The amount of wheat exported was more

than trebled in seventeen years. Look, further, at the cost of wheat production in America. The manure costs nothing, because of the natural richness of the land, and will probably cost little or nothing for many years to come. The ground, in many cases, costs little or nothing. Agricultural machinery is cheap and good. Hence the actual cost of wheat production is very low, about 1s. 3d. per bushel. Add to this the cost of transport, and it would appear as if American grain can be brought to British markets and sold at prices with which our farmers can hardly compete. When the Panama Canal is opened the cost of transport will be about one-half of what it is now, and then California and San Francisco will become our great granaries. There is no rosy prospect in connection with grain production in our country, and hence it is inevitable that grain production will still further diminish, and our greatest attention will be directed to fodder and stock. Our farmers will show their wisdom by adapting themselves to these natural conditions at the earliest possible moment; it will be ruinous if they adhere to the old traditions. The great importance of good fodder and good pastures is beginning to be recognised by our agricultural societies. Professor Wallace, now an ornament of our University, has pointed out the important part they are destined to play in the future history of our country.

On the motion of the REV. JAMES OVEREND a hearty vote of thanks was awarded Professor M'Alpine.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

AT the monthly Council meeting, held on November 4th, His Royal Highness, the Prince of Wales, K.G., President, in the chair, in considering veterinary matters,

Colonel KINGSCOTE presented the following report by Professor Cope:—

“Since the last committee meeting in August, the following outbreaks of Foot-and-Mouth Disease have been reported:—

“The outbreak at Ampthill Park, Beds, which occurred on July 11th, ceased on August 29th, without extending from that centre.

“In Cheshire the disease was detected among some cattle in the neighbourhood of Helsby and Mickle Trafford about August 8th, and extended to 10 different farms or premises, containing 168 head of cattle, 85 of which became affected. The whole of the cattle recovered by September 19th.

“The disease next appeared on a farm in Leicestershire on August 22nd. There were four cattle and 10 sheep on the premises. Two of the cattle were reported affected, and the Local Authority slaughtered all the animals, and stamped out the disease.

“About the end of August the disease was reported on a farm near Retford. Of four cattle on the premises one was said to have been affected. The whole of the cattle were slaughtered by the Local Authority.

“On September 1st and 5th outbreaks occurred in the county of Rutland. Of 23 cattle on these farms 13 became affected.

“On September 9th it appeared in Norfolk, where seven outbreaks occurred between September 9th and October 30th. Of 89 cattle on the premises 69 took the disease.

“Three outbreaks occurred in Lincolnshire between September 13th and 30th. Of 34 cattle on the farms 32 became affected with the disease.”

Professor COPE also reported that in the week ending June 13th there were 348 outbreaks of Swine Fever. On July 20th an Order came in force to close the markets, and in the week ending October 24th the outbreaks had decreased to 94.

Colonel KINGSCOTE, in moving the adoption of the report, stated that the following letter, by one of the Society's provincial veterinary surgeons, had been received too late to appear in the Committee's report:—

"I have no report of importance to make for the past year. Diseases of an epidemic or an endemic nature have not prevailed.

"I have had several severe cases of Sporadic Typhoid Influenza, which could, in most instances, be traced to empirical treatment and want of cleanliness.

"I may, however, mention a case of Rabies in cattle which has come under my notice.

"A herd of 40 Irish yearlings were purchased in Bristol in September last, and brought home on the 10th of the same month. In a few days afterwards one of them was observed to separate itself from the others, and to gallop wildly about, bellowing continually. It was brought to house, and I was sent for. Upon my arrival I found the animal dead. My attention was now called to another of the herd. I found this animal foaming at the mouth, galloping furiously about the field, and bellowing continuously, until, from sheer exhaustion, it would tumble down, continue bellowing, and foaming at the mouth. I at once ordered it to be destroyed and buried.

"I now proceeded to make a *post-mortem* examination of the animal first affected, and suffice it to observe that all the appearances confirmed my opinion as to the nature of the disease.

"On the following day a third of the herd became affected, and in accordance with my orders was at once brought in. I now had an opportunity of closely observing every symptom.

"There was perpetual bellowing, a hoarse noise being made, as though Sore Throat were present, of an ordinary nature, but manipulation of the throat produced no pain; foaming at the mouth, refusal of food, would plunge the mouth into a trough of water, but was unable to swallow, and the effort produced spasm and great pain. On the following day the symptoms became much worse, the sense of hearing became painfully sensitive, the slightest sound disturbed it, set it bellowing, and rendered it furious. Third day, animal worse, more violent, would attack any person within its reach; there was Amucosis of the near eye. It was found dead on the following morning, lying by the trough of water, having evidently died when making an effort to drink, the nostrils being full of water.

"Within the past few years I have seen Rabies in cattle, sheep, dogs, and cats; and as this fearful malady continues to steadily increase, I would presume to observe that the authorities would do well to adopt proper measures to prevent its spread, and one of the most potent measures would be to put a much heavier tax upon dogs than at present exists.

"It is the poacher's lurcher and mongrel rabbit-terrier, possessed by men who can contrive to starve their families to pay 7s. 6d. for a dog to assist them in committing depredations upon their neighbour's property; and to be the means of spreading the dreadful disease of Hydrophobia amongst their fellow-men.—I remain, my Lords and Gentlemen, your obedient servant,

"GEO. LEWIS, M.R.C.V.S.

"Monmouth, November 3rd, 1885."

Referring to the report of the Committee, Colonel KINGSCOTE said that although it was an encouraging report, it did not appear how these outbreaks occurred. He believed that at the Committee meeting yesterday Professor Brown told them that the Privy Council left it to the Local Authorities to deal with the matter, but he did not think that course so effectual as sending some one down to inquire into their causes. It might be that the disease came spontaneously, but he himself did not believe in that. The Agricultural Department of the Privy Council are now, he believed, prepared, in case of another outbreak of Foot-and-Mouth Disease, to make an investigation to see how long the germs had lain dormant, and that on such experiments money could not be better spent by the Government.

Professor BROWN stated that with regard to inquiry into outbreaks of disease and the vitality of disease germs, inquiries had been going on for the last ten years, here and on the Continent. With reference to the Foot-and-Mouth Disease especially, he was now prepared to obtain some virus and carry on some experiments. He pointed out that so far back as 1880 M. Pasteur had begun his experiments on Hydrophobia, and they had been continued up to the present moment, and it was only last week that M. Pasteur was able to state to the Paris Academy of Sciences that he *thought* he had arrived at a result of practical importance. It would therefore be seen that such investigations occupy time.

Mr. JAMES HOWARD, M.P., concurred with Colonel Kingscote in considering that it was necessary to have a definite opinion as to the duration of life of the germs of contagious disease. He trusted that this investigation would commence in the case of another outbreak. He believed the Privy Council of Inspectors knew no more of the subject than they did ten years ago. (Professor Brown assented.) He did not think that the visit of a single Inspector to the scene of the outbreak should be short, as there was surely enough money in the Treasury to bear any necessary expense.

Mr. WELLS drew attention to the late great prevalence of Swine Fever, which was almost as serious as the other disease. He had been informed that in his small county (Huntingdon), the payments by the Local Authorities, in six months, amounted to over £300. People had become very dissatisfied with the state of the law.

In reply to Sir Massey Lopes, Professor BROWN said that he could, without hesitation, state that there was no money nor other necessary means at the disposal of the Agricultural Department of the Privy Council for the purpose of investigation, on a sufficiently extensive scale, respecting the origin of outbreaks of disease. The object of the Act of 1878 was to stamp out disease rather than to inquire into its nature. Mr. Dent had said yesterday that the first step necessary in order to stamp out disease was to ascertain its origin, but he could not agree with him. He considered the prospects of Swine Fever satisfactory. He stated that the disease had long been known in this country, and had done a great deal of damage. Professor Brown then stated that the number of pigs affected in June last was nearly 400; an Order then came in force regulating markets, and the result was that the number of outbreaks last week had declined to about 90. The scheme in the future would be, when the disease had been reduced to very small limits, to order the slaughter of every pig in the infected places. In further reply to Mr. Howard, Professor Brown stated that, as far as they knew from evidence, Swine Fever was as contagious as Cattle Plague.

Colonel KINGSCOTE considered that it would strengthen the hands of the Department if the Council made a representation to the Government, and he therefore moved that the Veterinary Committee should report to the Council at their December meeting as to passing a special resolution, asking the Government to grant means for making the investigations required.

This motion was seconded by Sir MASSEY LOPES, and carried unanimously.

Colonel KINGSCOTE also gave notice that at the next meeting of the Council the Chairman would move for the renewal of the Veterinary Grant for 1886.

Obituary.

We regret to announce the death of Joseph Freeman, M.R.C.V.S., of Keyingham, East Yorkshire, on August 29th. The deceased graduated in 1859.

Mr. E. M. Perry, M.R.C.V.S., Mass., U.S.A., who graduated in 1878, is reported dead.

We have also to deplore the death of Inspecting Veterinary Surgeon E. J. Batt, of the Indian Veterinary Department, which occurred at Mus-sowrie, in the Himalayas, on the 29th October, from liver disease. Mr. Batt obtained his diploma in April, 1858, and joined the late East India Company's service. He was employed for many years in the Bengal Government studs, and was afterwards Assistant Superintendent of Horse-breeding in the North-West Provinces. Being of most amiable disposition, and a fine sportsman, he was an universal favourite throughout India.

H. M. Kohne, formerly Professor in the Hanover Veterinary School, author of "*Handbuch der Allgemeinen Pathologie*," and who was held in high esteem in Germany, died recently at Hamburg, aged sixty-two years.

We are also informed of the death of Professor Prosch, of the Copenhagen Veterinary School.

Correspondence.

CASTRATION.

SIR,—The method of castrating bulls in Ceylon, described in the "*Notes and News*" of the VETERINARY JOURNAL for November, is by no means confined to that country, but is commonly practised in many parts of India.

On the Government cattle farm at Hissar, in the southern Punjab, kept for the purpose of supplying the large bullocks required by the Commissariat and the Elephant Batteries of Artillery, castration is performed in the following manner:—

The young bull being cast, his testicles are placed upon a solid block of wood, and one tremendous blow is given to each of them with a heavy wooden beetle, after which the animal is turned loose.

I never had an opportunity of seeing the operation, but the military superintendent of the farm, who described it, assured me that, although the pain might be very great at the moment when the blow is given, the bulls did not appear to suffer much afterwards.

J. J. MEYRICK, F.R.C.V.S.,
Army Veterinary Inspector.

VOMITION IN THE HORSE.

SIR,—The case of vomition in a horse, recorded by Mr. Bonhill in the VETERINARY JOURNAL for November, reminds me of one which occurred in my own practice, when living in Montgomeryshire, about twenty-seven years ago.

A farmer called me in to attend a nearly full grown colt which had for a short time previously been in the habit of vomiting. The animal was at grass and, at intervals of several hours, used to arch his back, strain violently, and suddenly throw up, through the nostrils only, about a bucketful of half-digested food; after which he would commence feeding without showing further signs of uneasiness.

He was in fair condition, and on examination I could detect no other symptoms of illness.

I thought that the vomition might, perhaps, be produced by the irritation of some hard, indigestible substance, which could not pass through the pyloric orifice, and therefore administered a strong dose of aloes in solution, with the hope of stimulating the stomach to increased action.

Whatever the cause may have been, the colt left off vomiting from the time the medicine was given.

This is the only instance of the kind I have ever seen, except in connection with rupture of the stomach or small intestines. In such cases vomition

has almost invariably been present, but only a few ounces of food have passed through the nostrils at a time.

London, Nov. 12th, 1885.

J. J. MEYRICK, F.R.C.V.S.,
Army Veterinary Inspector.

ACTINOMYCOSIS AND ITS TREATMENT.

SIR,—In this month's number of the VETERINARY JOURNAL, I find an article on Actinomycosis and its treatment, by Mr. J. Brodie Gresswell, M.R.C.V.S., Louth.

This gentleman speaks highly of iodine and carbolic acid, and its curative properties in Actinomycosis. I can fully corroborate this statement, having adopted this treatment, for upwards of two years, in several cases that have come under my observation.

During the Spring of 1883, a client of mine purchased ten bullocks; they were turned out to grass for feeding purposes, and in the autumn, when they were taken into the strawyards, I was requested to attend one of these bullocks. On examination I found I had a well-marked case of Actinomycosis. The symptoms I need not here mention; they were similar to those so well described by Mr. Gresswell. My patient being in good condition, I advised the owner to have him slaughtered at once; this he readily consented to do. I procured the tongue and forwarded it to Professor T. Walley, at the same time asking his opinion as to the nature and treatment of this disease. A few days afterwards I received a reply, advising that I should carefully and deeply scrape the diseased patches, and apply freely a mixture of carbolic acid and strong tincture of iodine; this I did with excellent results. Professor Walley further advised me to take my morphia syringe, and inject some of this iodine and carbolic acid mixture to the depth of half an inch into the tongue, in cases of Actinomycosis.

About a month after forwarding the above-named specimen to the Professor, the same client requested me to visit the remaining nine bullocks, as he believed some others were suffering from the same disease as the one I recommended to be slaughtered.

On my arrival at the farm I examined the nine animals, and found two three-year-old bullocks suffering from Actinomycosis. I thought this a good opportunity to treat these cases with my hypodermic syringe, using it as an irrigator. With this small instrument I experienced some difficulty, as my syringe was scarcely strong enough for such indurated organs as actinomycosed tongues; by perseverance, however, I overcame this difficulty as well as I could expect.

After I had treated these two particular cases in this manner, the animals made a rapid recovery. I considered them practically cured, and when fattened and slaughtered each weighed over 60 stones.

A short time afterwards I was again asked to look at another of these bullocks, one of the remaining seven (and which had, previous to this, shewn no symptom of disease); here, again, I found a case of Actinomycosis. This fourth bullock, out of ten, brought me to the conclusion that this disease was highly contagious. This case I did not treat, as the owner had all the seven remaining animals slaughtered, as he said, without any further trouble or expense.

At the meeting of the Lincolnshire Veterinary Medical Society, held at Grantham, on January 6th, 1885, Professor Walley in his paper on "Special Forms of Stomatitis Treatment, etc.," says nothing can succeed better than a strong tincture of iodine and carbolic acid, in the treatment of Actinomycosis; *vide* VETERINARY JOURNAL, April, 1885, page 281.

LIONEL L. LEACH, M.R.C.V.S.

Bargate, Boston, Nov. 12th, 1885.

THE PROFESSION IN NEW SOUTH WALES.

SIR,—In the October number of your valuable Journal. "W. F. S." asks what prospects there are for members of the profession in New South Wales, or any of the Australian colonies, and whether emigration is likely to be a successful venture. And further, are any of the Government or army appointments obtainable by English veterinary surgeons? I have inquired from several friends as to the prospects of a veterinary surgeon in New Zealand, and am informed that there are plenty of men practising the veterinary art in that colony who work for a mere trifle. In answer to his second question, I will give the substance of a letter I have received from the secretary to the Agent-General for New South Wales in Great Britain. He says that the Agent-General has no intimation that there are openings in the army of New South Wales for members of the Royal College of Veterinary Surgeons, but is of opinion that there are plenty of applicants on the spot for any vacancies that may arise. All appointments are made in the colony by the Hon. the Colonial Secretary, Sydney.

F. G. A.

ADVERTISING.

SIR,—May I trouble you for your opinion upon the enclosed advertisements taken from the "Farm and Home"? Is it justifiable for members of the Royal College of Veterinary Surgeons to take advantage of such means to add to their income, or is it not rather justifying the action of farmers who use nostrums advertised by firms whose business it is to supply them with medicine-chests for the use of their sick patients, and against whom there was such a great outcry a while since by the profession?

I enclose my card.

JUSTICE.

[Another correspondent, "Etiquette," also sends a number of advertisements of members, cut from various newspapers. If members of the medical profession advertised in the same fashion, we know what would happen.—ED. V. J.]

TO CORRESPONDENTS.

Several communications and reports of societies are, in consequence of pressure on our space, held over until next month.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from Professor Lewis, Edinburgh; W. Penhale, Barnstaple; J. D. Allman, London; J. Matthews, Royal Horse Guards, London; J. J. Meyrick, C.B., A.V.D., London; S. Wiltshire, Natal; R. Tweedley, Glasgow; T. Marriott, A.V.D., India; R. W. Burke, A.V.D., India; A. J. Haslam, Egypt; J. B. Wolstenholme, Manchester; "Justice"; H. Tanner, London; L. L. Leach, Boston; "Etiquette"; R. H. Dyer, Limerick; K. Winslow, Boston, U.S.A.; H. Leeney, East Grinstead; J. Freeman, Hull; G. Kinnell, St. Austell; W. Broughton, Leeds; C. Hartley, Lincoln; "F. G. A."; J. F. Oliver, London; J. Donald, Wigton; F. G. Ashley, Wigton; Professor Walley, Edinburgh; W. O. Williams, Edinburgh.

BOOKS AND PAMPHLETS: *Twaalfde Jaarverslag van het Parc Vaccinogène bij's Rijks Veeartsenijschool te Utrecht*; *La Peripneumonie Bovine dans les Basses-Pyrénées*; *M. Cornevin, Première Etude sur le Rouget du Porc*; *Dictionnaire Vétérinaire* (Vol. xiii.); *M. H. Bouley, La Nouvelle Vaccination*.

JOURNALS, ETC.: *Echo Vétérinaire*; *British Medical Journal*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Lancet*; *Annales de Médecine Vétérinaire*; *Recueil de Médecine Vétérinaire*; *Revista Argentina de Ciencias Medicas*; *North British Agriculturist*; *Repertorium für Thierheilkunde*; *Der Thierarzt*; *Der Hufschmid*; *Journal of the National Agricultural Society of Victoria*; *Revista Popular de la Exposicion Rural*.

NEWSPAPERS: *Congleton and Macclesfield Mercury*; *Scotsman*; *Manchester Guardian*; *Bell's Messenger*.



